



SUB-COMMITTEE ON SAFETY OF  
NAVIGATION  
45th session  
Agenda item 14

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## REPORT TO THE MARITIME SAFETY COMMITTEE

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## **1 GENERAL**

1.1 The Sub-Committee on Safety of Navigation held its forty-fourth session from 20 to 24 September 1999 at the Headquarters of the Organization, under the chairmanship of Mr. K. Polderman (The Netherlands). The Vice-Chairman, Dr. V.I. Peresyphkin (Russian Federation), was also present.

1.2 The session was attended by representatives of the following countries:

ALGERIA	JAPAN
ARGENTINA	LIBERIA
AUSTRALIA	LIBYAN ARAB JAMAHIRIYA
BAHAMAS	MALAYSIA
BANGLADESH	MALTA
BELGIUM	MARSHALL ISLANDS
BRAZIL	MEXICO
BULGARIA	NETHERLANDS
CANADA	NORWAY
CHILE	PANAMA
CHINA	PERU
COLOMBIA	PHILIPPINES
CROATIA	POLAND
CUBA	PORTUGAL
CYPRUS	REPUBLIC OF KOREA
DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA	ROMANIA
DENMARK	RUSSIAN FEDERATION
ECUADOR	SINGAPORE
EGYPT	SOUTH AFRICA
ESTONIA	SPAIN
FINLAND	SWEDEN
FRANCE	SYRIAN ARAB REPUBLIC
GEORGIA	THAILAND
GERMANY	TURKEY
GREECE	UKRAINE
INDIA	UNITED KINGDOM
ISRAEL	UNITED STATES
ITALY	URUGUAY
	VENEZUELA

and of the following Associate Member of IMO:

HONG KONG, CHINA

1.3 The following United Nations, intergovernmental and non-governmental organizations were also represented:

WORLD METEOROLOGICAL ORGANIZATION (WMO)  
INTERNATIONAL HYDROGRAPHIC ORGANIZATION (IHO)  
EUROPEAN COMMISSION (EC)  
INTERNATIONAL MOBILE SATELLITE ORGANIZATION (IMSO)  
INTERNATIONAL CHAMBER OF SHIPPING (ICS)  
INTERNATIONAL ORGANIZATION FOR STANDARDIZATION (ISO)  
INTERNATIONAL SHIPPING FEDERATION (ISF)

INTERNATIONAL ELECTROTECHNICAL COMMISSION (IEC)  
 INTERNATIONAL UNION OF MARINE INSURANCE (IUMI)  
 INTERNATIONAL CONFEDERATION OF FREE TRADE UNIONS (ICFTU)  
 INTERNATIONAL ASSOCIATION OF MARINE AIDS TO NAVIGATION AND  
 LIGHTHOUSE AUTHORITIES (IALA)  
 INTERNATIONAL RADIO-MARITIME COMMITTEE (CIRM)  
 INTERNATIONAL ASSOCIATION OF PORTS AND HARBOURS (IAPH)  
 THE BALTIC AND INTERNATIONAL MARITIME COUNCIL (BIMCO)  
 INTERNATIONAL ASSOCIATION OF CLASSIFICATION SOCIETIES (IACS)  
 OIL COMPANIES INTERNATIONAL MARINE FORUM (OCIMF)  
 INTERNATIONAL MARITIME PILOTS' ASSOCIATION (IMPA)  
 FRIENDS OF THE EARTH INTERNATIONAL (FOEI)  
 INTERNATIONAL ASSOCIATION OF DRILLING CONTRACTORS (IADC)  
 INTERNATIONAL ASSOCIATION OF INSTITUTES OF NAVIGATION (IAIN)  
 INTERNATIONAL FEDERATION OF SHIPMASTERS' ASSOCIATIONS (IFSMA)  
 INTERNATIONAL ASSOCIATION OF INDEPENDENT TANKERS OWNERS  
 (INTERTANKO)  
 INTERNATIONAL GROUP OF P AND I ASSOCIATIONS (P AND I)  
 SOCIETY OF INTERNATIONAL GAS TANKER AND TERMINAL OPERATORS  
 (SIGTTO)  
 INTERNATIONAL LIFEBOAT FEDERATION (ILF)  
 INTERNATIONAL COUNCIL OF CRUISE LINES (ICCL)  
 INTERNATIONAL ASSOCIATION OF DRY CARGO SHIPOWNERS (INTERCARGO)  
 INTERNATIONAL SAILING FEDERATION (ISAF)  
 THE INTERNATIONAL MARINE CONTRACTORS ASSOCIATION  
 WORLD NUCLEAR TRANSPORT INSTITUTE (WNTI)

1.4 In welcoming the participants, the Secretary-General referred to important matters to be considered during the session, including routeing measures, mandatory ship reporting systems, voyage planning, identification and protection of special areas and particularly sensitive areas, performance standards for navigational equipment, operational aspects of pilot transfer arrangements, safety of passenger submersible craft, the comprehensive review of the High-Speed Craft Code and the IMO Standard Marine Communication Phrases.

Referring to collisions, which continue to constitute a considerable percentage of accidents at sea, he specifically mentioned the collision between a cruise ship and a container ship off the north-eastern approaches to the English Channel late in August 1999. Fortunately, there were no casualties and the rescue operation mounted by the coastal States was a textbook exercise. Although it would be difficult to separate the technical aspects of the collision from those pertaining to liability, insurance and other legal issues, he would appreciate it very much if the reports on the incident by the Flag Administrations concerned could be submitted to IMO as soon as possible so that their conclusions and recommendations might be studied thoroughly and action taken on them without delay. If lessons were to be learned which might require a review and revision of IMO instruments, it would be beneficial to safety at sea if action was taken promptly to prevent any recurrence of what could have been a maritime tragedy. In this context, he expressed appreciation for the joint submission of the Bahamas and Panama to this session of the Sub-Committee (NAV 45/3/7).

Turning to the revision of SOLAS chapter V, the Secretary-General reminded the Sub-Committee of the need to complete this task at this session so that the MSC would be able to adopt the revised chapter in time for it to enter into force on 1 July 2002, as planned. Any delay would result in a postponement of the adoption and entry into force of the important amendments included in the revised text.

The Secretary-General informed the Sub-Committee of the recent revision of the Guidelines on the organization and method of work of MSC and MEPC and their subsidiary bodies, and underlined the fact that the time had now come for their implementation in a diligent and consistent manner to achieve their objective of enhancing the efficiency of the two Committees and Sub-Committees.

He concluded by repeating the policy statement he had made at the eightieth session of the Council which had been subsequently endorsed by the MSC, namely that the areas where Governments and industry should focus their attention in the years to come were those of shifting emphasis onto people, ensuring the effective implementation of the STCW Convention and the ISM Code, enhancing the safety of bulk carriers, developing a safety culture and environmental conscience in all maritime activities, avoiding unnecessary over-regulation and instead, strengthening the Organization's technical co-operation programmes and delivery. This statement, expanded to encompass activities within the remit of other Committees and the Organization as a whole, had formed the subject of a draft Assembly resolution on the objectives of the Organization in the 2000s, which he had proposed and the Council, at its eighty-second session, had unanimously approved for submission to the twenty-first session of the Assembly for adoption.

1.5 The Chairman thanked the Secretary-General for his words of encouragement and stated that his advice and requests would be given every consideration in the Sub-Committee's deliberations.

### **Adoption of the agenda**

1.6 The Sub-Committee adopted the agenda, as approved by MSC 71 (NAV 45/2/2, annex 2). The agenda of the session, including a list of documents submitted under each agenda item, is given in annex 1.

1.7 The Sub-Committee recalled that as informed by the Secretary-General a late joint submission by the Bahamas and Panama on an accident investigation concerning the collision between the passenger ship **Norwegian Dream** and the container ship **Ever Decent** had been received, and that following consultations with the Chairman and the Chairman of the MSC, this submission had been issued as document NAV 45/3/7.

1.8 The Chairman invited the Sub-Committee, in view of the circumstances surrounding the accident, to agree to consider the joint submission at this session. He further informed the Sub-Committee that however, in order for it to be considered, the Sub-Committee should, in accordance with paragraph 47 of the revised Guidelines on the organization and method of work, decide to do so at the opening of the session.

1.9 In view of the circumstances the Sub-Committee decided to consider document NAV 45/3/7 and, in accordance with the wish of the submitting Governments, agreed to do so on Thursday, 23 September 1999.

## **2 DECISIONS OF OTHER IMO BODIES**

2.1 The Sub-Committee noted, in general decisions and comments (NAV 45/2, NAV 45/2/1, NAV 45/2/2 and NAV 45/2/3) pertaining to its work made by MSC 70, MEPC 42, STW 30, DE 42, MSC 71, MEPC 43 and COMSAR 4 and took them into account in its deliberations when dealing with relevant agenda items.

2.2 The Secretariat informed the Sub-Committee that MSC/Circ.931 and MEPC/Circ.366 - Guidelines on the organization and method of work of the MSC and MEPC and their subsidiary bodies, and MSC/Circ.930 and MEPC/Circ.364 - Guidelines on methods for making reference to IMO and other instruments in IMO Conventions and other mandatory instruments have also been issued for the guidance of all concerned.

### **3 ROUTEING OF SHIPS, SHIP REPORTING AND RELATED MATTERS (INCLUDING VOYAGE PLANNING)**

#### **Amendments to existing Traffic Separation Schemes (TSSs)**

3.1 At the request of the Government of Chile (NAV 45/3/Rev.1), the Sub-Committee examined proposals for amendments to the traffic separation schemes in the approaches to Iquique and Punta Arenas (Straits of Magellan) to increase maritime safety and protection of the marine environment in these ports, given that maritime traffic to and from both ports has increased, especially in Punta Arenas, the construction of a new wharf in Bahia Catalina, which has made it necessary to extend the limits of the port, and thus modify the existing traffic separation scheme (TSS).

3.2 The Sub-Committee approved the proposed amended traffic separation schemes in the approaches to Iquique and Punta Arenas, as shown in annex 2.

#### **New Traffic Separation Schemes (TSSs)**

3.3 The Sub-Committee recalled that, at its forty-fourth session, it had examined a proposal by Peru for twenty-one traffic separation schemes along the coast of Peru, for improving navigational safety in areas of convergence and high traffic density. However, NAV 44 was of the opinion that some improvements on the delineation and description of the proposed schemes were necessary. Accordingly, Peru had agreed to review the proposed traffic separation schemes and had indicated that it would submit a revised proposal for consideration with a view to adoption at the earliest possible opportunity.

3.4 At the request of the Government of Peru (NAV 45/3/1), the Sub-Committee examined a revised proposal (NAV 45/3/1) for four traffic separation schemes along the Peruvian coast, namely:

- .1 Landfall and approaches to Paita Bay;
- .2 Approaches to Puerto Callao;
- .3 Landfall and approaches to Puerto San Martin; and
- .4 Landfall and approaches to Puerto Ilo.

3.5 The Sub-Committee approved the proposed new traffic separation schemes including associated routeing measures along the Peruvian coast, given in annex 2.

#### **Traffic separation scheme and mandatory ship reporting system in the waters Off Chengshan Jiao Promontory**

3.6 At the request of the Government of China (NAV 45/3/3), the Sub-Committee examined a proposal for the establishment of a traffic separation scheme and a mandatory ship reporting system in the waters Off Chengshan Jiao Promontory for ships of 300 gross tonnage and upwards in accordance with SOLAS regulation V/8-1. Improved ship-identification through the proposed ship reporting system will support maritime traffic safety, search and rescue operations and responses to emergency situations, including the threat of pollution.

3.7 The Sub-Committee amended the proposed mandatory ship reporting system to conform with the format adopted by the Committee at its sixty-sixth session and prepared the draft MSC resolution on mandatory ship reporting system “Off Chengshan Jiao Promontory”, given in annex 4, which the

Committee is invited to adopt, in accordance with resolution A.858(20). The system will enter into force at 0000 hours UTC six months after its adoption by the Committee.

3.8 With regard to the proposed new traffic separation scheme Off Chengshan Jiao Promontory, the Sub-Committee did not support the Chinese proposal to assign mandatory status to the traffic separation scheme, arguing that ships navigating in the area, at a wide distance from the coast in international waters, should not be required to use the traffic separation scheme situated near the coast in China's territorial waters.

3.9 The Chinese delegation stated that for the time being it could accept the proposal of the Sub-Committee for a recommendatory Chengshan Jiao Ships' Routeing System for the sake of its early implementation. However, it still believed that a mandatory system in the waters concerned was necessary, to enhance maritime safety and prevent marine pollution. The Chinese delegation informed the Sub-Committee that China would conduct reviews and assessments of the system regularly, and submit new proposals as necessary to the Sub-Committee. It reiterated the position of China that all ships sailing in the waters off the Chengshan Jiao Promontory should strictly comply with the relevant laws and legislation of China as well as the International Regulations for Preventing Collisions at Sea 1972, especially rule 10 thereof.

3.10 The Sub-Committee, noting that the delineation of the proposed inshore traffic zone was not complete, made the necessary amendments following which it agreed to the proposed new routeing system (given in annex 2) as a recommendatory measure.

3.11 The Sub-Committee did not approve the proposed special regulations mentioned in paragraph 4 of annex 1 to document NAV 45/3/3 as the specific points included therein are covered by Rule 10 of the Collision Regulations.

### **Routeing measures other than TSSs**

### **Recommended Tracks for Navigation of Certain Ships Off the Coast of California**

3.12 At the request of the Government of United States (NAV 45/3/4), the Sub-Committee examined a proposal for three recommended tracks Off the coast of California for all ships carrying cargo of hazardous materials and ships of 300 gross tonnage and above. Compliance with the proposed recommendation tracks is expected to result in safer organization of ship traffic between the IMO approved Traffic Separation Schemes (TSSs) Off San Francisco and Santa Barbara, California and thus increase the protection of the marine environment by reducing the risk of collisions and groundings.

3.13 The Sub-Committee agreed with the two recommended tracks for ships of 300 gross tonnage and above, but could not agree with the proposed new recommended track for ships carrying hazardous cargoes because it would concentrate ships following opposite directions on the same track. Instead, the Sub-Committee agreed to the establishment of two separate recommended tracks for ships carrying hazardous cargo in bulk.

3.14 In support of their proposal, the United States informed the Sub-Committee that the military exercise areas in question are monitored by shore-based and aerial surveillance to know in real time if there are vessels in the areas. Communications are established to warn vessels of any operations in the area and Notice to Mariners are published, in advance, to warn of operations being conducted. The United States also clarified that, because of the depth of the water, under sea operations conducted in the "U 5" area will not impact on surface vessel traffic.

3.15 The Sub-Committee prepared and agreed the new recommended tracks as shown in annex 3.

### **Amendments to the Provision of Aids to Navigation in the English Channel and the Dover Strait Traffic Separation Scheme**

3.16 The Sub-Committee considered a proposal by the United Kingdom (NAV 45/3/5) advising the planned discontinuation of the EC1 and EC3 Lighted Buoys and recommending the abolition of their associated “Areas to be avoided”.

3.17 The Sub-Committee noted that the EC1 and EC3 Lighted Buoys will be removed in December 1999 and agreed to the abolition of the areas to be avoided around these lighted buoys, as given in annex 3.

3.18 Information on the abolishment of the “Areas to be avoided” will be circulated to all relevant entities by means of an appropriate SN Circular after adoption by the Committee.

### **Establishment of an Area to be avoided off the north coast of Cuba**

3.19 The Sub-Committee noted that MEPC 42, noting that traffic separation schemes contained in paragraph 21 of MEPC 42/10/3, had already been adopted by IMO, however, an area to be avoided, contained in paragraph 20 of MEPC 42/10/3, had not been discussed, had agreed that the document should be referred to the NAV Sub-Committee for discussion, since it dealt with ships’ routing measures. It had consequently requested the NAV Sub-Committee to consider the proposed area to be avoided taking into account the status of the Archipelago of Sabana-Camagüey as a PSSA and relevant information submitted to the MEPC on the sea area concerned (MEPC 40/7 and Add.1).

3.20 The Sub-Committee also noted that MEPC 42 had further agreed that, since the proposed area to be avoided was for protection of the marine environment, the outcome of the discussion at NAV 45 should be reported back to the MEPC before a final decision was taken.

3.21 The Sub-Committee considered a proposal by Cuba (NAV 45/3/6) calling for the establishment of an “Area to be avoided” at the approaches to the ports of Matanzas and Cordenas and agreed to approve the proposed “Area to be avoided”, as shown in annex 3.

### **Implementation of the new and amended traffic separation schemes including routing measures other than TSSs**

3.22 The new and amended traffic separation schemes including routing measures other than TSSs given in annexes 2 and 3, which the Committee is invited to adopt, in accordance with resolution A.858(20) will be implemented at 0000 hours UTC six months after their adoption by the Committee.

### **Identification and protection of special areas and particularly sensitive sea areas: Revision of resolution A.720(17)**

3.23 The Sub-Committee noted that MEPC 43 had approved new procedures for the Identification of Particularly Sensitive Sea Areas, which supersede the procedures contained in paragraphs 3.2 and 3.5 of the annex to resolution A.720(17), and amendments to the Guidelines contained in resolution A.720(17) together with a covering draft Assembly resolutions (MEPC 43/21, annex 6) with a view to adoption at the twenty-first session of the Assembly.

3.24 The Sub-Committee further noted that MEPC 43 had agreed (MEPC 43/21, paragraph 6.22) to invite NAV 45 to consider the proposed Assembly resolution and provide comments directly to the twenty-first session of the Assembly.



3.25 The Sub-Committee noted the draft Assembly resolution on Procedures for the identification of particularly sensitive sea areas and the adoption of associated protective measures and amendments to the guidelines contained in resolution A.720 (17) and considered the relevant parts of it. The Sub-Committee did not find any discrepancies with the General Provision on Ships' Routeing. The Sub-Committee endorsed the draft Assembly resolution prepared by MEPC 43 and requested the Secretariat to inform the Assembly accordingly.

#### **Information on ship strikes of endangered North Atlantic Right Whales in the waters of eastern Canada**

3.26 The Sub-Committee noted the information provided by Canada (NAV 45/INF.3) advising the Sub-Committee of the critically endangered status of the North Atlantic right whale and the threat posed to the species by international maritime traffic in the western North Atlantic, specifically in the waters around Nova Scotia and New Brunswick in eastern Canada, and also highlighting the fact that ship collisions are the species' largest known cause of human-related mortality.

3.27 The Sub-Committee recalled that the United States had submitted documents NAV 44/INF.4, MEPC 40/INF.9 and MSC 69/INF.21 on the same issue prior to the adoption of the mandatory ship reporting system "Off the northeastern and the southeastern coasts of the United States" aimed at protecting the endangered northern right whales against ship strikes.

3.28 The Sub-Committee was informed by the delegation of Canada of its intention to submit a full proposal for consideration by the Sub-Committee at its forty-sixth session.

#### **Criteria for bunker fuel in ships' routeing provisions**

3.29 The Sub-Committee noted that MSC 71 had considered a proposal by the United Kingdom (MSC 71/20/3) to include, in the Sub-Committee's work programme, a new item concerning the possible extension of the criteria governing existing and new routeing and reporting measures for ships which may pose a pollution threat because of their bunker fuel and had agreed to refer the document to NAV 45 for preliminary consideration in the context of its agenda item on "Routeing of ships, ship reporting and related matters".

3.30 The Sub-Committee did not support the proposal by the United Kingdom to establish criteria for ships' bunker fuels to be used in provisions for ships' routeing. Instead the Sub-Committee was of the opinion that there would be merit to incorporate a general provision for ships' bunker fuels in an appropriate paragraph of the General Provisions of Ships' Routeing, for instance, in section 3.11.4 addressing the application to ships using a routeing system or any part thereof. The United Kingdom delegation indicated they would submit a paper to this effect to the forty-sixth session of the Sub-Committee.

#### **Mandatory ship reporting systems: optimization of coastal ship-to-shore communications**

3.31 The Sub-Committee recalled that MSC 71, in considering document MSC 71/20/12 (Spain), had noted that Spain may, in the future, adopt mandatory ship reporting systems within Spain's territorial waters in areas extending 12 nautical miles from the coast such as approaches to ports, areas of high traffic density, hazardous areas for navigation or simply in environmentally sensitive areas.

3.32 The Sub-Committee noted that, at MSC 71, the delegation of the United States, supported by the delegation of the Russian Federation, had expressed concern over Spain's proposal to establish mandatory ship reporting systems in its territorial sea without first submitting its proposals to IMO for adoption.

3.33 The Sub-Committee also noted that MSC 71, having further considered a proposal by Spain in document MSC 71/20/12 to develop a system to allow marine traffic control centres to communicate with a ship in cases where an accident is imminent, had instructed it to consider this proposal with a view to advising the Committee on a possible course of action.

3.34 The Sub-Committee noted the intention of Spain to adopt mandatory ship reporting systems within their territorial waters in accordance with regulation V/8-1 of SOLAS, accommodate the concerns of other delegations and ensure the right enforcement. Spain informed the Sub-Committee of their intention to submit these systems to the Committee.

3.35 After consideration of the proposal and with regard to the emergence of AIS, the Sub-Committee felt that further data and research was needed before the decision could be taken on the inclusion in its work programme of an item on watch alarms and optimization of ship-to-shore communications.

3.36 The Sub-Committee recommended that the matter be referred to IALA for consideration. It was further suggested that Spain conduct trials of prototype tests and present their results to the Committee.

### **Guidelines for voyage planning**

3.37 The Sub-Committee recalled that, at its forty-fourth session, it had prepared a preliminary draft Assembly resolution on Guidelines for Voyage Planning applying to all ships with the intention to finalize it at NAV 45.

3.38 The Sub-Committee also recalled that MSC 70 had authorized NAV 45 to submit the finalized draft text of the draft Assembly resolution and the Guidelines on voyage planning, directly to the twenty-first session of the Assembly for adoption.

3.39 The Sub-Committee further considered the draft guidelines and the ICS proposal (NAV 45/3/2) offering qualified support to the draft Guidelines and agreed the finalized text of the Assembly resolution on Guidelines on voyage planning, as amended, given at annex 5 for submission directly to the twenty-first session of the Assembly for adoption.

### **Accident investigation – Norwegian Dream/Ever Decent**

3.40 As decided at its opening session, the Sub-Committee considered a joint submission by the Bahamas and Panama (NAV 45/3/7) on an accident investigation concerning the collision between the passenger ship **Norwegian Dream** and the container ship **Ever Decent**.

3.41 The Sub-Committee noted the information provided and the request of the Bahamas and Panama for a Formal Safety Assessment study by the coastal States involved into the feasibility of extending the CALDOVREP reporting area to a line joining Zeebrugge and Harwich in order to assess the benefit of identifying all vessels within the CNIS radar coverage area.

3.42 The delegation of the United Kingdom expressed its appreciation for the comprehensive and timely manner in which Panama and the Bahamas were investigating the recent collision between the **Norwegian Dream** and the **Ever Decent**; and thanked them for the submission of this interim report for the Sub-Committee's consideration and looked forward to the Organization receiving at the earliest possible date the submission of the final reports of the investigations.

The United Kingdom further stated that it had been at the forefront of promoting Formal Safety Assessment (FSA) as a proactive, scientifically based, considered and holistic methodology for addressing maritime safety and environmental protection matters and would therefore not rule out the

use of the FSA methodology to address any conclusions from the final reports. If the requirement for an FSA Study was justified following publication of the final reports, and a definition of the scope of the FSA Study was agreed; then it would be appropriate at that time, to consider not only the necessary expertise that would be required to undertake the Study but also the funding of the project, noting the stakeholders or interested entities that would be affected by the Study.

#### **4 AMENDMENTS TO THE COLREGs**

4.1 The Sub-Committee recalled that, at its forty-fourth session, it had given preliminary consideration to the proposals on amendments to the COLREGs including high-speed craft and had agreed to further consider them at NAV 45, inviting Members to submit their comments and proposals on these issues to NAV 45.

4.2 The Sub-Committee noted that MSC 70 had decided when deleting the item on “Operational aspects of wing-in-ground (WIG) craft” from the Sub-Committee’s work programme, that the issue should be considered under its agenda item on “Amendments to the COLREGs”.

4.3 The Sub-Committee further recalled that, at its forty-third session, it had recognized the need for possible amendments to COLREGs and, at its forty-fourth session, had considered the proposal by the Russian Federation (NAV 44/9) on possible amendments to COLREGs relating to operational aspects of wing-in-ground (WIG) craft and had prepared a preliminary draft for amendments to the COLREGs, (NAV 44/14, annex 19). It had been also of the opinion that this matter should be further considered in connection with proposed amendments to the COLREGs for high-speed craft.

4.4 The Sub-Committee had for its consideration proposals by ISAF (NAV 45/4 and NAV 45/4/4), Hong Kong, China (NAV 45/4/1), Russian Federation (NAV 45/4/2) and Japan (NAV 45/4/3).

4.5 Due to lack of time, the Sub-Committee was unable to discuss all proposals and only considered proposals by Japan (NAV 45/4/3) and ISAF (NAV 45/4) relating to amendments to the COLREGs concerning provisions for whistles and sound signals.

#### **Ships' Routing and Related Matters Working Group**

4.6 The Working Group approved preliminary draft amendments to Rule 33, 35 and annex III of the COLREGs for inclusion in the set of amendments to the COLREGs to be considered by the Sub-Committee at its forty-sixth session.

4.7 The Sub-Committee instructed the Working Group to consider other amendments to the COLREGs as proposed in the relevant documents submitted on this issue and report to the Sub-Committee at its forty-sixth session.

4.8 Members were invited to consider the report of the Group, when circulated, and submit comments and proposals thereon for consideration by the Sub-Committee at its forty-sixth session.

#### **5 REVISION OF SOLAS CHAPTER V**

##### **General**

5.1 The Sub-Committee agreed that the provisional draft revised SOLAS chapter V as set out in document (NAV 45/5) be used as a basic document for considering all the comments/proposals submitted to NAV 45 and the pending proposals from NAV 43 and NAV 44.

5.2 The Sub-Committee recalled that a number of regulations had been already agreed to/approved by NAV 43 (5, 8, 9, 10, 11, 12, 13, 21, 23, 24, 26, 28, 30, 35, 36, 37 and 39), and NAV 44 (4, 6, 7, 14 and 21).

5.3 The Sub-Committee further recalled that at its forty-third session, it had deleted regulations 31 and 32 and, at its forty-fourth session, it had not considered regulations 1, 2 and 3 and also the proposed new regulations.

5.4 The Sub-Committee agreed not to re-open the discussion on regulations which have been agreed to/approved by NAV 43 and NAV 44.

## **Regulation 20 - Carriage requirements and performance standards for shipborne navigational systems and equipment and performance standards**

5.5 The Sub-Committee noted that, at its forty-fourth session, having considered proposals by Germany and the Netherlands (NAV 43/5), Japan (NAV 44/5/14 and NAV 44/5/16), the Russian Federation (NAV 44/5/11), the United Kingdom (NAV 44/5/12), CIRM (NAV 44/5/7) and FOEI (NAV 44/5/5) on paragraphs 1.1 to 1.9, it had agreed in principle on the requirements contained therein, as amended. Due to time constraints it had been unable to give consideration to paragraphs 1.10, 1.11, 2, 3, 4 and 5 of regulation 20 and had deferred consideration until NAV 45.

5.6 The Sub-Committee also noted that, at MSC 70, Japan (MSC 70/11/7) had expressed concern on the carriage requirements of shipborne navigational equipment, as proposed in regulation 20 of the draft revised text of SOLAS chapter V, being of the opinion that:

- .1 the safety of navigation could be improved by the introduction of more advanced technology; however, the expansion of carriage requirements and provision of new equipment and systems should be carefully considered from a cost-effective viewpoint;
- .2 the additional equipment proposed would cost domestic Japanese ships between 150 and 300 gross tonnage about US\$12,000; ships between 300 and 500 gross tonnage about US\$50,000; and ships of 50,000 gross tonnage and upwards about US\$150,000 (the installation cost for each equipment not included in these figures); and
- .3 more equipment would be required to be carried on board ships in spite of the restricted number of crew members.

Japan was also concerned with operational aspects, i.e. how crew would be able to deal with the increased amounts of information and equipment. Hence, Japan was of the opinion that draft SOLAS regulation V/20 was excessive, particularly for small ships engaged in domestic voyages.

5.7 The Sub-Committee further noted that the Committee, following some discussion, (MSC 70/23, paragraphs 11.85 to 11.86) had decided to refer the Japanese proposal (MSC 70/11/7) to NAV 45, instructing the Sub-Committee to consider the proposal in the context of its work on the revision of SOLAS chapter V and to provide the Committee with a justification for such new requirements.

5.8 On the basis of submissions by Denmark, Finland, Germany, Ireland, Italy, the Netherlands, Portugal, Sweden and the United Kingdom (NAV 45/5/4) and Japan (NAV 45/5/15), the Sub-Committee discussed in general the issue of justification for new requirements.

5.9 The following general conclusions were agreed to, and were used as basic guidance for further work on revision of SOLAS chapter V.

- .1 In principle, it would not be feasible to give justification, in terms of cost/benefit or specific contribution to safety of navigation, for each separate new requirements at this stage of the revision of SOLAS chapter V.
- .2 It was, however, generally accepted that at least some general assessment should be made of the added value of new requirements in terms of their contribution to safety of navigation.
- .3 It was also accepted that such assessment should basically address the following questions:
  - .1 Is the requirement proportional to its actual contribution to safety of navigation, given the size and type of the vessel, and intended use?
  - .2 Does the requirement have any counter-productive effect on safety of navigation, for instance by creating an overload of information to the mariner?

5.10 The Sub-Committee concluded that such assessment should preferably be made in the context of the consideration of regulations or specific provisions concerning:

- general scope of application of the new chapter V;
- general exemptions;
- specific provisions for application of new requirements to existing ships;
- specific provisions for the application to and the exemptions for certain classes of ships and/or for certain voyages;
- entry into force; and
- phased-in requirements.

5.11 The Sub-Committee further concluded that in general a more transparent framework for the application of and exemptions from requirements could contribute to a better understanding of SOLAS chapter V and its new requirements, and as such to the justification of such requirements.

5.12 After a lengthy discussion, the Sub-Committee agreed in principle to include carriage requirements for Automatic Identification System (AIS) in this regulation.

5.13 The Sub-Committee further agreed to a phase-in implementation schedule for different types/sizes of ships for shipborne navigational systems and equipment in general and for AIS in particular.

5.14 In reviewing the AIS phase-in implementation schedule, the Sub-Committee moved “tankers” from paragraph 1.5.1.2.2 to paragraph 1.5.1.2.1 and agreed to the second set of implementation dates as reflected in paragraph 1.5 of the new draft text of regulation 20 (NAV 45/14/Add.1).

5.15 In reviewing the new draft text of regulation 20 on shipborne navigational systems and equipment, the Sub-Committee agreed to revise the details definition of “all ships” in regulation 2 and agreed to consequential amendments on this regulation.

5.16 The delegation of Norway expressed the view that certain parts of the proposal on regulation 20 were still not quite clear, and could be misinterpreted regarding which of the new requirements that apply to ships constructed before [1 July 2002]. In view of this, Norway intends to submit a revised proposal on regulation 20 to MSC 72, intended to clarify the application of the new requirements.

5.17 The Japanese delegation reserved its position:

- .1 on the implementation date of AIS for existing tankers as specified in paragraph 1.5.1.2.1; and
- .2 on the mandatory carriage of a second automatic tracking aid for ships of 300 gross tonnage and upwards as specified in paragraph 1.8.2.

5.18 The Sub-Committee agreed that for the introduction of the mandatory carriage requirements of AIS, it is essential to develop the guidelines for the operation of AIS for adoption by the twenty-second Assembly in 2001 so that it will become effective in time for the entry into force of amendments to chapter V.

5.19 The Sub-Committee was informed by the representative of IALA that the issue of patent rights for AIS was being addressed.

5.20 The Sub-Committee noted that the manufactures of AIS would waive patents relating to AIS possessed by them.

5.21 The Sub-Committee, considering proposals by CIRM (NAV 45/5/3 and NAV 45/5/6), United States (NAV 45/5/9), Japan (NAV 45/5/11) and ISAF (NAV 45/5/14), supported them in principle and amended the carriage requirements of this regulation accordingly, in particular paragraphs 1.2.1, 1.2.7, 1.8.2, 1.9.2 and 1.10.3. The proposal for the preparation of a SN/Circular on Guidance on adjustment of magnetic compasses was deferred to a later stage. However, with regard to "other means" permitted under this regulation and as proposed in paragraph 3*bis* of regulation ~~20~~ 19 on Carriage requirements and performance standards for shipborne navigational systems and equipment (NAV 45/14/Add.1), the Sub-Committee agreed to invite the DE Sub-Committee to comment on this proposed new provision.

5.22 The Brazilian delegation stated that it had a different opinion with regard to the present proposition of amendments to chapter V, regulation 20 as it is written in paragraph 1.5. It could agree with the initial Japanese proposal (NAV 45/5/12) and in its view it was premature to extend AIS to ships of all types and tonnages. It recognized that AIS had a potential to enhance the safety of navigation but also thought that more studies must be carried out.

It further added that several areas of the world have a low density of ships navigating and due to their size these areas are very different from “La Mancha” Channel or other straits; Brazil was not sure that AIS would add considerable safety in these areas. Hence, keeping the text as it was presently proposed, Brazil must reserve its position and would return to discuss the matter during MSC 72.

## **Regulation 22 – Voyage data recorder**

5.23 The Sub-Committee noted that the twentieth Assembly adopted performance standards for shipborne voyage data recorders (VDRs) by resolution A.861(20).

5.24 The Sub-Committee noted also that NAV 44 had considered proposals by Japan (NAV 44/5/15), the Russian Federation (NAV 44/5/11), the United Kingdom (NAV 44/5/9) and the United States (NAV 44/5/6) and, while agreeing on the carriage requirements of VDRs for ro-ro passenger ships on international voyages, had not reached consensus with regard to the applicability to other ship types. A majority had favoured a phased-in implementation as proposed by the United Kingdom (NAV 44/5/12), while a substantial number of delegations could not support this extension. The provision on the annual testing of equipment as proposed by the United States (NAV 44/5/6) had been supported by some delegations.

5.25 The Sub-Committee considered the proposal by Japan (NAV 45/5/11) that a carriage requirement for Voyage Data Recorder (VDR) should be applied only to new ro-ro passenger ships engaged on international voyages. A majority of the Sub-Committee was in favour of a wider application of the carriage requirement and expressed support for the phased-in scheme in paragraph 1 of draft regulation 22 in NAV 45/5. A substantial minority of the Sub-Committee however supported the Japanese proposal.

5.26 After considerable discussion, the Sub-Committee agreed on a carriage requirement for VDR for existing and new passenger ships including ro-ro passenger ships on international voyages.

5.27 The Japanese delegation stated that Japan was not in a position to accept at this stage the carriage requirements of VDR to new non ro-ro passenger ships and existing ro-ro passenger ships, and may revert to this matter at MSC 72.

5.28 The Brazilian delegation also reserved its position making reference to paragraph 1.5 of regulation 20 and recalling the same reasons (paragraph 5.22 refers), including its right to discuss the whole draft chapter V, item by item during MSC 72, due to the great number of documents and interventions at NAV 45.

5.29 The majority of the Sub-Committee supported the inclusion of sub-paragraphs .4 to .7 in this regulation, while a substantial minority opposed this and favoured a resolution to be adopted which calls on administrations to consider the use of VDR also on other ships and, in the light of the experience gained, to consider whether this regulation should be extended to cover other ships in future.

5.30 The Sub-Committee was unable to reach a consensus on these sub-paragraphs, the text of which is in square brackets. The Committee was invited to make a final decision on this matter.

5.31 The Sub-Committee also considered the proposal by ICS, BIMCO, INTERCARGO, INTERTANKO, OCIMF and SIGTTO (NAV 45/5/1) seeking guidance from the Sub-Committee as to who legally would own the data logged by a VDR and what will be the extent of obligations placed on shipowners to recover the protective capsule of a VDR following an incident, and in particular, following an incident that results in the sinking of the ship.

5.32 In responding to the concerns of ICS and others, the delegation of the United States stated the following:

- .1 With respect to the ownership of the data captured by a VDR, the United States did not see that this data would be treated any differently than data retained in other storage media on the ship, such as ECDIS, a course recorder or even an engine order log. Prior to a casualty, the shipowner would have ownership and some degree of control over access by others. But following a casualty, that right would be subject to the jurisdictional claims and investigatory processes of countries seeking to conduct an investigation. This would be the flag State, or the coastal State in whose waters

the casualty took place, or both. In the opinion of the United States, a practical distinction should be made between legal ownership of the hardware, software and data and the "right of access" to that data by legally competent authorities, and furthermore, that "rights of access", in the final analysis, be governed by the laws of the States claiming jurisdiction over a given incident or a given vessel, rather than by any criteria developed by the Organization; and

- .2 With respect to the obligation of the shipowner to recover the VDR following an incident, the United States did not believe that a carriage requirement under SOLAS V would impose or imply any special legal obligation on the part of the Company to retrieve the recorder in the event of a casualty or sinking. Certainly, the co-operation of the Company would be expected if a retrieval effort were undertaken, for example to aid in the location of the device and in downloading any data.

5.33 The delegation of the United States further stated that these issues were certainly not unique to the maritime industry. The aviation community has also had to confront these matters. The United States had reviewed the ICAO guidance on flight recorders, and also compared the IMO guidance on VDRs which already existed in resolution A.849(20) - Code for the investigations of Marine Casualties and Incidents, and both the ICAO and IMO guidance stress two things:

- .1 the need for co-operation among all those involved; and
- .2 the need to have the recorder and the recorded information handled only by qualified and authorized personnel.

As experience was gained with VDR's in the maritime industry, there might be a need to expand on the guidance in resolution A.849(20).

5.34 A number of delegations supported the statement of the United States. It was concluded that ICS and others would look further into the matter on the basis of the guidance provided.

## **Regulation 25 – Nautical charts and publications**

5.35 The Sub-Committee noted that MSC 69 had invited IHO to consider the Italian proposal (MSC 69/5/3) and submit comments, if any, as early as possible to NAV 45.

5.36 The Sub-Committee also noted that NAV 43 had deferred consideration of this regulation to NAV 44, and further that NAV 44 had not considered regulation 25.

5.37 The Sub-Committee, in considering proposals by IHO (NAV 45/5/2) and the United States (NAV 45/5/9), agreed after considerable discussion, to:

- .1 delete the word official in the context of nautical charts and nautical publications;
- .2 re-arrange regulation 25, emphasizing the requirement to keep charts and publications up-to-date; and
- .3 include a specific reference to carriage of charts and ECDIS in regulation 20.

5.38 The delegation of Colombia speaking on behalf of Argentina, Brazil, Chile, Cuba, Ecuador, Mexico, Panama, Peru, Spain, Uruguay and Venezuela, stated the aforementioned countries did not associate themselves with and support the proposal to eliminate the term "Official" from the definition of "nautical charts and publications" in chapter V, regulations 2, 9, 20 and 25 of the SOLAS Convention.



It was considered that the following arguments are sufficiently cogent for this proposal not to be approved.

- .1 in resolution A.3.4 updated by its fifteenth Assembly, the International Hydrographic Organization recommended that national hydrographic services should caution mariners against the use of unofficial publications and promote the use of official publications;
- .2 the definition in part II, article 6, of the United Nations Convention on the Law of the Sea, 1962, uses the words "as shown by the appropriate symbol on charts officially recognized by the coastal State" in the text on the definition of the territorial sea; and
- .3 the Sub-Committee itself, at its forty-fourth session, considered and approved the draft United Nations General Assembly resolution on hydrographic services, which includes the following paragraphs:
  - .3.1 preparing and issuing official nautical charts, sailing directions, lists of lights, tide table and other official nautical publications, where applicable, satisfying the needs of safe navigation;
  - .3.2 promulgating notices to mariners in order to keep official nautical charts and publications, as far as possible, up to date.

The official nature of a nautical chart implies that the country issuing it takes responsibility for any error it was essential to maintain complete trust in the information charted. There can be no peace of mind if there is the slightest risk of the data having been used and manipulated by unauthorized bodies and/or persons.

Therefore, it was considered prudent for the Sub-Committee to maintain the word "official" in the regulations and definitions from which it was proposed to eliminate it, since this expression was contained in legal and legally valid texts of the highest rank, starting with the United Nations Convention on the Law of the Sea (UNCLOS).

5.39 The observer from the International Hydrographic Organization referred to the comments and concerns expressed by Colombia and stated that it had become obvious that there were going to be problems as now for the first time there were, two definitions of "nautical charts". He further mentioned that as a result of both the Italian proposal to MSC 69 (MSC 69/5/3) and the United States proposal (NAV 45/5/9) submitted to NAV 45, the IHB was only able to advise IHO Member States of the United States submission, the results of the IHO poll on the Italian proposal and to draw attention to the serious implications of the term "official". Member States who responded to the United States proposal met with the IHB immediately prior to, and during, NAV 45 in an attempt to resolve the issue, taking into account the same issues as mentioned by Colombia. It was found possible to eliminate the second definition contained in draft regulation 2.3 and use only the definition in draft regulation 2.4 without using the word "official". It was considered that the term "official" was now unnecessary as the only "nautical chart" had to be "by or on the authority of the Government, authorized Hydrographic Office or other relevant Government institution".

He also mentioned that a number of Administrations have major problems in regard to the unnecessary use of the word official as this has different connotations for some Administrations. It was possible therefore that if there was insistence on the use of the term "official" the compromise proposal could collapse and the position would revert back to what was reflected in NAV 45/5 with two types of nautical charts. This would mean that anyone might produce a chart and call it a "nautical chart" without any form of authority or supervision.

The IHO observer further informed the Sub-Committee that the IHO intended to hold an Extraordinary Conference on strategy issues during 20-24 March 2000 in Monaco at which this issue could be debated before MSC 72. He therefore appealed to Colombia and other delegates to support the compromise draft as an interim measure.

5.40 The delegation of Italy stated that it fully shared the point of view of the International Hydrographic Organization, and disagreed with the Colombian proposal, that could result in a serious involution to regulations 2, 20 and 25 as reported in NAV 45/WP.1/Add.3. The term "official" did not add any clarification or further qualification to a nautical chart. Otherwise it should be added to all equipments, fitted on board, e.g., to have official radars, official compasses and so on.

Italy considered the term "issued by or on the Authority of a Government" fully covered all the operational and legal aspects related to this subject, was consistent with UNCLOS wording and also stressed that the responsibility for providing nautical chart, in conformity with the approved international standards, ultimately rested with individual Member States. The term "official" would unduly complicate the matter and restrict how individual Administrations fulfil their tasks.

Italy also endorsed that the proposal on this matter be referred to IHO for comments before discussion during MSC 72.

5.41 The Sub-Committee after some discussion agreed to follow the suggested course of action as proposed by Colombia, supported by other delegations and re-instated the word official in square brackets in the relevant draft regulations.

#### **Regulation 27 – Records of navigational activities**

5.42 The Sub-Committee noted that, at its forty-third session, it had concurred in a proposal by Germany and the Netherlands that guidelines for recording events related to navigation should be prepared and also cross-referenced in a footnote to regulation 27 and invited Members to submit proposals to NAV 44.

5.43 The Sub-Committee also noted that no such submissions were received at NAV 44, and that, at its forty-fourth session, it had not considered regulation 27.

5.44 The Sub-Committee considered and approved regulation 27, as amended.

5.45 A number of delegations were of the opinion that the Sub-Committee should also develop Guidelines for recording events related to navigation to assist mariners in complying with the requirement of this regulation.

5.46 The Sub-Committee accordingly decided to request the Committee to include in its work programme, a high-priority item on "Guidelines for recording events related to navigation" with a target completion date not later than the entry into force of the revised chapter V.

#### **Regulation 29 – Pilot transfer arrangements**

5.47 The Sub-Committee noted that regulation 29 comprises old regulation 17 without change, which had been adopted by MSC 59 on 23 May 1991, complemented by resolution A.667(16) - to which most of the technical requirements of the old regulation 17 were transferred.

5.48 The Sub-Committee also noted that NAV 43 had agreed to retain regulation 29.

5.49 The Sub-Committee recalled that, at its forty-fourth session, having considered proposals by Germany (NAV 44/5/3) and IMPA (NAV 44/5/4) it had agreed the draft Assembly resolution on Pilot transfer arrangements (NAV 44/14, annex 23) which MSC 70 had approved with amendments for submission to the twenty-first Assembly for adoption. NAV 44 did not agree with a proposal by Italy (NAV 44/5/2) for a new type of pilot ladder steps to be included in the requirements in the aforementioned draft Assembly resolution.

5.50 The Sub-Committee agreed and approved regulation 29.

### **Regulation 33 – Operational limitations**

5.51 The Sub-Committee noted that at its forty-third session, it had agreed regulation 33 with modification to the text that this regulation would apply only to ships to which chapter I applies.

5.52 The Sub-Committee further noted that at its forty-fourth session, it deferred consideration of this regulation to NAV 45.

5.53 The Sub-Committee agreed and approved regulation 33.

### **Regulation 34 – Masters discretion for safe navigation**

5.54 The Sub-Committee noted that, at its forty-fourth session, it had deferred consideration of this regulation to NAV 45.

5.55 The Sub-Committee agreed to combine regulation 34 with regulation 38.

### **Regulation 38 – Avoidance of dangerous situations**

5.56 The Sub-Committee noted that at its forty-fourth session, it had deferred consideration of this regulation to NAV 45.

5.57 The Sub-Committee agreed that the text of this regulation required improvement in light of existing provisions of chapter VIII of the STCW Code, Part A.

5.58 In view of the reservations expressed by some delegations on the appropriateness of this text, the Sub-Committee agreed to reinstate the square brackets around paragraph 1 and invited Members to submit proposals thereon to MSC 72.

### **Regulation 1 – Applications**

5.59 The Sub-Committee recalled that, at its forty-third session, it had considered a proposal by the United States (NAV 43/5/2, paragraph 3) and (NAV 43/5/3, paragraph 2), supported by some delegations, that the phrase in paragraph 1 "ships of war" was out of date and should be replaced by wording derived from the sovereign immunity provisions of UNCLOS (e.g. Article 32). The Netherlands and Germany, supported by other delegations had preferred to retain the first alternative of the draft text, being of the opinion that ships owned or operated by a Contracting Government should comply with SOLAS chapter V. The delegation of Japan had pointed out that since ships owned or operated by governments, such as patrol ships, research ships, training ships, etc., are also subject to other chapters of SOLAS 74 and consequently exclusion of such ships from chapter V would give rise to an anomaly in the application of SOLAS 74, unless regulation I/3(a)(i) was amended.

5.60 The Sub-Committee also recalled that, at its forty-third session, that it had not had time to consider the remainder of regulation 1 or regulations 2 and 3 and had agreed to consider the various

comments and proposals submitted thereon by COMSAR 2 (COMSAR 2/13) Japan (NAV 43/5/8), Germany and the Netherlands (NAV 43/5), Russian Federation (NAV 43/5/3), Sweden (NAV 43/5/5), United States (NAV 43/5/2), and IHO (NAV 43/7/17) at NAV 44.

5.61 The Sub-Committee noted that, at its forty-fourth session it had not considered regulations 1, 2 and 3.

5.62 The Sub-Committee reconsidered the relevant proposals and agreed that the issue of application of Chapter V to ships of war was of a political nature and should be decided by the Committee. The alternative text of regulation 1.1 was therefore kept in square brackets.

5.63 The Sub-Committee further agreed that the Administration shall determine to what extent the provisions of regulations, 15, 16 and 18 to 29 shall apply to the following categories of ships:

- .1 ships below 150 gross tonnage of all voyages; and
- .2 ships below 500 gross tonnage not engaged on international voyages

and included a corresponding paragraph in regulation 1.

5.64 A proposal by the delegation of the United States to also include “fishing vessels” in the categories of ships exempted in paragraph 5.63 above, was supported by some delegations and placed in square brackets for reconsideration at MSC 72.

## **Regulation 2 – Definitions and clarifications**

5.65 The Sub-Committee considered a proposal by the Russian Federation (NAV 44/5/11) and agreed to include a definition for “*All ships*” in regulation 2.

5.66 In addition, the Sub-Committee also agreed to combine the relevant definitions for [official] nautical chart and other [official] nautical publications in the revised chapter V and to delete the definitions for “Company” and “Novel navigational systems or equipment”.

## **Regulation 3 - Exemptions**

5.67 The Sub-Committee revised the exemption provisions of this regulation in light of the decisions taken on, in particular regulation 1 - Application and regulation 20 - Carriage requirements and performance standards for shipborne navigational systems and equipment.

## **Regulation 4 – Navigational warning service**

5.68 The Sub-Committee noted that, at its forty-fourth session, it had approved regulation 4 with the amended title “Navigational warning service.”

5.69 The Sub-Committee also noted that with regard to mandatory issue of navigational warnings, the Committee (MSC 70/23, paragraph 11.98) had instructed NAV 45 to consider document MSC 70/11/5 and the amendments proposed therein in the context of its work on revision of SOLAS chapter V.

5.70 The Sub-Committee recalled that the Committee had already issued MSC/Circ.893 on this matter, which invited Member Governments to:

- .1 attach the greatest importance to the safety of navigation and avoid taking any action which might adversely affect shipping engaged in international trade; and

- .2 strictly comply with the recommendations contained in resolution A.706(17) on the World-Wide Navigational Warning Service (in particular, paragraphs 4.2.1.3.3 and 6.6.1.5 and 6.6.1.9 of Annex 1 (IMO/IHO World-Wide Navigational Warning Service Guidance Document) thereto) so that operations should not endanger the safety of navigation.

5.71 Japan informed the Sub-Committee that it was satisfied with the action already taken and did not wish the matter to be considered further.

5.72 The Sub-Committee accordingly agreed regulation 4, as drafted.

### **Regulation 15 – Principles relating to bridge design, design and arrangement of navigational systems and equipment and bridge procedures**

5.73 The Sub-Committee noted that, at its forty-third session, it had agreed to base the ship-related requirements of chapter V on a combination of specific ship requirements and the functional approach.

5.74 The Sub-Committee also noted that at its forty-fourth session, it had considered proposals by Japan (NAV 44/5/16), the Russian Federation (NAV 44/5/11), the United States (NAV 44/5/6) and IACS (NAV 44/5/1) and had agreed in principle to the draft regulation 15 proposed by the United States but deferred approval until NAV 45. NAV 44 had also noted that this proposed regulation reflected the guidance contained in resolution A.850(20) - Human element vision, principles and goals for the Organization.

5.75 The Sub-Committee approved regulation 15, as drafted.

### **Regulation 16 – General requirements for system design**

5.76 The Sub-Committee noted that, at its forty-third session, it had not considered this regulation.

5.77 The Sub-Committee noted further that NAV 44, having considered proposals by Germany and the Netherlands (NAV 43/5), Japan (NAV 44/5/16), the Russian Federation (NAV 44/5/11) and the United Kingdom (NAV 44/5/12), had agreed to delete paragraph 2 of regulation 16 and to combine regulations 16 and 17 with the title “Maintenance of equipment” and had deferred approval until NAV 45.

5.78 The Sub-Committee considered and approved regulation 16, as amended.

### **Regulation 18 – Electromagnetic compatibility**

5.79 The Sub-Committee noted that, at its forty-third session, it had not considered regulation 18.

5.80 The Sub-Committee considered a proposal by Japan (NAV 45/5/11) and agreed that the test for electromagnetic compatibility in regulation 18.1 was not required for existing ships and reference to resolution A.813(19) on General requirements for electromagnetic compatibility for all electrical and electronic ships' equipment was included in this regulation, which was subsequently approved.

### **Regulation 19 – Approval and surveys of navigational systems and equipment**

5.81 The Sub-Committee noted that at its forty-fourth session, having given preliminary consideration to this regulation, it had deferred approval of this regulation until NAV 45.

5.82 The Sub-Committee considered proposals by Hong Kong, China (NAV 45/5/5), and Japan (NAV 45/5/11) and approved them and amended draft regulation 19 accordingly.

5.83 The proposal of the United Kingdom (NAV 45/5/7), on allowing exemptions from full compliance with performance standards for equipment installed prior to the date of application of the revised Chapter V, was discussed and received support from some delegations. However, the majority of delegations did not support the content of NAV 45/5/7 and, in the interests of making progress with discussion on the revision of Chapter V, the United Kingdom delegation withdrew the proposal.

5.84 In reviewing draft regulation 19, the Sub-Committee agreed further amendments to improve the text and subsequently approved it, as amended.

5.85 Regarding the deletion of paragraph 2 of regulation 19, in the basic text in NAV 45/5 in the new approved version of regulation 19, the German delegation reserved its position for the following reasons. In the original text, it was required :

"Before giving approval to types of navigational systems and equipment, Administrations shall ensure that such navigational systems and equipment have been tested, to confirm that they comply with the requirements of this chapter and conform to appropriate performance standards not inferior to those adopted by the Organization."

The deletion of this requirement leads to a substantial weakening of new chapter V taking into account that the original text of paragraph 2 of regulation 19, was copied from regulation 4 of chapter III: Administrations would have no obligation to take care of the compliance of the equipment with the performance standards. Moreover, no tests are necessary before giving approval to types of navigational systems and equipment. And also the requirement to fulfil the requirements of chapter V for example with regard to the electromagnetic compatibility need not to be complied with. Therefore, the German delegation was deeply convinced that the update of the carriage requirements to the technical progress of the future required to retain paragraph 2 of regulation 19 as in NAV 45/5 as it was also regulated in regulation 4 of chapter III.

### **Proposed new regulations**

5.86 The Sub-Committee noted that, at its forty-third session, it had not supported including proposed new regulations on "Responsibilities of companies" and on "Preparing for the Voyage" in chapter V and had invited Members to submit proposals to NAV 44 on whether provisions on voyage planning should be included in the revised chapter V.

5.87 The Sub-Committee also noted that, at its forty-fourth session, due to time constraints, it had not considered a proposal by the United States (NAV 44/5/6) to include in chapter V the proposed regulation on "Voyage Planning", a proposed regulation on Company's responsibility for safe navigation and a proposed regulation on preparing for the voyage, submitted by Germany (NAV 44/5/13), and had deferred consideration to NAV 45.

5.88 Due to time constraints the Sub-Committee was not able to consider proposed new regulations and invited Members to submit proposals, in light of the review of draft regulation 38, to MSC 72.

### **Format of the revised chapter V**

5.89 The Sub-Committee due to time constraints was also not able to consider the format of the revised chapter V.

5.90 The complete revised draft text of SOLAS chapter V together with the associated draft MSC resolution is set out in annex 6 for the Committee's consideration and approval and subsequent adoption by MSC 73.

5.91 The complete revised draft text of SOLAS chapter V has been circulated as document NAV 45/14/Add.1. Paragraph 1.9 of regulation ~~20~~ 19 on Carriage requirement and performance standards for shipborne navigational systems and equipment contains errors in sub-paragraphs 1.9.1 and 1.9.2, and should read as follows:

"1.9 All ships of 10,000 gross tonnage and upwards shall, in addition to meeting the requirements of paragraph 1.8 with the exception of 1.8.2, have:

- .1 an automatic radar plotting aid, or other means, to plot automatically the range and bearing of at least 20 other targets, which is connected to a device to indicate speed and distance through the water, to determine collision risks and simulate a trial manoeuvre; and
- .2 a heading or track control system, or other means, to automatically control and keep to a heading and/or straight track."

5.92 The Sub-Committee also agreed that the list of details of navigational systems and equipment, as set out in document NAV 45/WP.1/Add.3, annex 3, given in annex 7 should be brought to the attention of MSC 72 as possible consequential amendments to SOLAS 1974 and the 1988 SOLAS Protocol.

## **6 ERGONOMIC CRITERIA FOR BRIDGE EQUIPMENT AND LAYOUT**

6.1 The Sub-Committee recalled that, at its forty-third session, noting the progress (NAV 43/6) being made and that the Correspondence Group was unlikely to complete its work by NAV 44, it had invited the Correspondence Group to continue its work and had agreed to defer further consideration of this matter until the work was nearing completion and the ergonomic criteria had been sufficiently developed for detailed consideration by the Sub-Committee. Any requests by the Correspondence Group for guidance on its work would, in accordance with the decision of the Committee (MSC 68/23, paragraph 20.3), should be considered by the Sub-Committee under the agenda item "Any Other Business".

6.2 The Sub-Committee also recalled that, at its forty-third session, it had instructed the Secretariat to communicate with the International Organization for Standardization (ISO), in particular with regard to the work of Technical Committee 8 (TC8), and the International Electrotechnical Commission (IEC), in particular with regard to the work of Technical Committee 80 (TC80), in order to obtain information on the work currently being carried out by these bodies on ergonomic criteria for bridge equipment and layout, and to invite ISO and IEC to participate in the IMO Correspondence Group.

6.3 The Sub-Committee gave initial consideration to the report of the Intersessional Correspondence Group co-ordinated by Germany (NAV 45/6) including a draft performance standard on Ergonomic Criteria for Bridge Equipment and Layout and was of the opinion such criteria should be developed in the form of Guidelines.

6.4 The Sub-Committee took into account the document of IEC (NAV 45/6/1) informing that the Technical Committee 80 had noted the work of the aforementioned IMO Correspondence Group and that the fourth edition of IEC 60945 - Maritime navigation and radiocommunication equipment and

systems - General requirements, methods of testing and required test results would incorporate, in particular, the criteria being developed.

6.5 Unfortunately, due to lack of time the Sub-Committee could not complete the work and invited the Committee to extend the target completion date for the agenda item “Guidelines on Ergonomic criteria for bridge equipment and layout” to the year 2000 and include this item in the provisional agenda for NAV 46.

6.6 Members were invited to consider NAV 45/6 and submit their comments and proposals to the next session of the Sub-Committee for consideration and decision, as appropriate.

## **7 NAVIGATIONAL AIDS AND RELATED MATTERS**

### **WORLD-WIDE RADIONAVIGATION SYSTEM**

#### **Assembly resolution A.860(20) on maritime policy for a future Global Navigation Satellite System (GNSS)**

7.1 The Sub-Committee noted that the twentieth session of the IMO Assembly adopted resolution A.860(20) on Maritime Policy for a future Global Navigation Satellite System (GNSS).

7.2 The Sub-Committee also noted that MSC 69 (MSC 69/22, paragraph 20.43) had instructed the Sub-Committee to keep the Maritime policy for a future Global Navigation Satellite System (GNSS) under review and prepare a draft report to the twenty-second session of the Assembly, as necessary, for consideration by MSC 74, which required two actions namely:

- .1 to be completed by Autumn 1999 for input to the twenty-first session of the IMO Assembly, involving a reassessment of the resolution, if necessary, as a result of unforeseen developments on specific proposed future GNSSs; and
- .2 to be completed by Autumn 2001 for input to the twenty-second session of the IMO Assembly, involving the consideration of the proposed future GNSS, including the related agreements between interested Governments, other international organizations and/or system providers.

Members had been invited to provide their comments and proposals thereon to NAV 45.

7.3 The Sub-Committee further noted that the Technical Working Group at NAV 44 was of the opinion (NAV 45/7, paragraph 2.12) that there had been no unforeseen developments and that there was nothing to add at that stage.

7.4 The Sub-Committee considered NAV 45/7/4 (Denmark, Finland, Germany, the Netherlands, Norway and Spain) outlining discussions on a future GNSS within the European GNSS Maritime Advisory Forum – specifically identifying potential maritime applications and associated user requirements relevant to a future GNSS. The “List of minimum maritime user requirements for a GNSS (Appendix 2 to the Annex of resolution A.860(20)) had been reviewed and extended, in particular for non-general maritime navigation applications.

In document NAV 45/7/4 the Organization was invited to make an assessment of the contribution to navigation performance of vessel technical error, charts and a future GNSS. It was recommended that urgent consideration be given to producing charts, cost-effectively, to an accuracy consistent with a GNSS and to a common datum.



7.5 The Sub-Committee was of the opinion that developments reflected in the attached report to NAV 45/7/4 could be used, to some extent, for review of resolution A.860(20) and invited Members to consider the report and submit their comments and proposals to NAV 46 for consideration with a view to revising resolution A.860(20).

### **Practical difficulties with Differential Correction Systems**

7.6 The Sub-Committee considered the report of the Technical Working Group and noted its comments (NAV 45/7, paragraph 2.15) that there were practical difficulties with Differential Correction Systems in achieving the performance required of resolution A.815(19) - World-Wide Radionavigation System, particularly the update rate of 2 s, the signal availability requirement of 99.8% and the service reliability of 99.97%.

7.7 The Sub-Committee was informed by the IALA representative that discussions had taken place in IALA on the practical difficulties with Differential Correction Systems in achieving the performance required of resolution A.815(19) – World-Wide Radionavigation System.

7.8 Taking into account the fact that some Member States had experienced difficulties meeting the requirements of resolution A.815(19), IALA offered to analyse these standards, including their definitions and levels, and inform the Organization accordingly.

### **Guidance on chart datums and the accuracy of positions on charts**

7.9 The Sub-Committee recalled, that at its forty-fourth session, it had considered the United Kingdom proposal (NAV 44/7/9) for a draft text of an SN Circular containing recommendations/guidelines with respect to the safety aspects of the use of different geodetic chart datums, as discussed by the Technical Working Group at NAV 43, taking into account the proposal by IEC (NAV 43/7/4), and prepared the preliminary draft text of an SN Circular containing guidance on chart datums and the accuracy of positions on charts.

7.10 The Sub-Committee also recalled that it had also instructed the Secretariat to convey the preliminary draft SN Circular to IHO for consideration and submission of their comments to NAV 45.

7.11 The Sub-Committee was informed by IHO (NAV 45/7/2) that while nearly all the hydrographic offices of coastal States were promulgating guidance on chart datums, they were almost unanimously of the opinion that an IMO SN Circular would be beneficial. France and the Russian Federation felt that an SN Circular would be a duplication of the work done by hydrographic offices.

7.12 The Sub-Committee agreed the draft SN Circular containing guidance on chart datums and the accuracy of positions on charts, given in annex 8, which the Committee was invited to approve.

### **Third meeting of the Global Navigation Satellite System Panel (GNSSP/3)**

7.13 The Sub-Committee noted the information provided by ICAO (NAV 45/INF.6) giving details of the outcome of the third meeting of the Global Navigation Satellite System Panel (GNSSP/3) held in Montreal, 12 to 23 April 1999, which was of relevance to the work of IMO, especially on the issue of development of guidelines for the long-term GNSS. The GNSS Panel had stressed the importance of ICAO co-ordination on GNSS with organizations representing other modes of transport, particularly with the IMO, and had made a recommendation to this effect.

**Revision of performance standards for shipborne satellite radionavigational receivers**

7.14 The Sub-Committee recalled that, at its forty-fourth session, it had noted information provided by IEC (NAV 44/INF.9) on the need for amendments to various IMO resolutions concerning the Global Navigation Satellite System (GNSS) to keep them updated in view of a series of events that have taken place since their adoption. Such events include amongst others, reports of interference to shipborne GPS receivers from satellite communications systems and other sources; the adoption, by IMO of resolutions on standards for high-speed craft; and the experience gained from collisions/groundings etc., in which the use and performance of a GPS shipborne receiver has raised concern with regard to the receiver characteristics.

7.15 The Sub-Committee also recalled that it had invited the Committee to include this item in its work programme, which was subsequently agreed at MSC 71.

7.16 The Technical Working Group considered the IEC proposal (NAV 45/7/5) on Review of performance standards for shipborne satellite radionavigational receivers - Proposed amendments to resolution A.819(19) and MSC.64(67), annex 2 and its report will be submitted to NAV 46 for further consideration and action, as appropriate.

**DEVELOPMENT OF PERFORMANCE STANDARDS FOR NIGHT VISION EQUIPMENT FOR HIGH-SPEED CRAFT**

7.17 The Sub-Committee recalled that, following consideration of a proposal by Germany (MSC 68/20/12) at MSC 68, calling for the development of performance standards for night vision equipment for high-speed craft, which had been supported by a number of delegations, MSC 68 had not accepted a proposal by Hong Kong (MSC 68/20/11) calling for the development at that stage, of criteria/guidelines for the acceptance of night vision equipment with a view to developing later on, performance standards on the basis of experience gained, and decided to include in the NAV Sub-Committee's work programme a new high priority item on "Performance standards for night vision equipment for high-speed craft", with two sessions needed to complete the item and instructed it to give initial consideration to this matter at NAV 44.

7.18 The Sub-Committee further recalled that, at its forty-fourth session it had instructed the Technical Working Group to consider a number of other documents concerning the development of performance standards for night vision equipment for High-Speed Craft (HSC) and the outcome of the Working Group's discussions related to these documents had been circulated to the Sub-Committee in document NAV 45/7.

7.19 The Sub-Committee considered the report of the Technical Working Group at NAV 44 (NAV 45/7, paragraph 2.3, annex 1) and the comments submitted by ISO (NAV 45/7/3) and agreed the draft performance standards for night vision equipment for High-Speed Craft, given in annex 9 for adoption by the Committee.

**DEVELOPMENT OF PERFORMANCE STANDARDS FOR DAYLIGHT SIGNALLING LAMPS**

7.20 The Sub-Committee recalled that MSC 67 had considered a proposal by Germany (MSC 67/19/3) to develop performance standards for daylight signalling lamps and had decided to include a new low priority sub-item on "Performance standards for daylight signalling lamps" under the NAV Sub-Committee's work programme item "Performance standards for navigational systems and equipment", with 2 sessions needed to complete this work.

7.21 The Sub-Committee, having considered the report of the Technical Working Group at NAV 44 (NAV 45/7, paragraphs 2.4 to 2.6, annex 2), agreed the draft performance standards for daylight signalling lamps, given in annex 10, for adoption by the Committee.

**REVISION OF PERFORMANCE STANDARDS FOR DEVICES TO INDICATE SPEED AND DISTANCE (RESOLUTION A.824(19))**

7.22 The Sub-Committee noted that IEC was in the final stages of a revision of IEC Publication 61023:1999 - Maritime navigation and radiocommunication equipment and systems - Marine speed and distance measuring equipment (SDME) - performance requirements - Methods of testing and required test results. This technical standard has been based rigorously upon the performance standards of the relevant resolution A.824(19). In the course of the development of this technical standard some problems had been identified with this resolution, as detailed in document NAV 45/7/1.

7.23 The Sub-Committee also noted that MSC 71 had considered document MSC 71/20/10 (IEC) proposing that amendments to resolution A.824(19) - Performance standards for devices to indicate speed and distance be developed, to enable IEC to finalize their relevant standard in line with that resolution and had decided to include in the Sub-Committee's work programme a high priority item on "Revision of performance standards for devices to indicate speed and distance (resolution A.824(19))", with a target completion date of 1999 and also include the item in the provisional agenda for NAV 45.

7.24 The Sub-Committee considered NAV 45/7/1 (IEC), NAV 45/7/6 (United Kingdom), NAV 45/7/7 (Sweden) and MSC 71/20/10 (IEC) and after considerable discussion agreed the revised performance standards for devices to measure and indicate speed and distance, given in annex 11, for adoption by the Committee.

7.25 The delegation of Bahamas, supported by the delegations of Australia, Greece, Panama and the ICS representative, was of the opinion that the minimum requirement for devices to measure and indicate speed and distance, which are intended for general navigation, ship manoeuvring and anti-collision use, should be - "to provide information on the distance run and the forward speed of the ship through the water" only.

**ADOPTION OF PERFORMANCE STANDARDS**

7.26 Taking into account the above decisions, the Sub-Committee prepared draft MSC resolutions on adoption of new and amended performance standards to which the following new and amended recommended performance standards are attached:

- .1 night vision equipment for high-speed craft;
- .2 daylight signalling lamps; and
- .3 devices to measure and indicate speed and distance,

and was of the opinion that these performance standards should apply from 1 July 2002.

7.27 The Committee was invited to adopt the draft MSC resolutions on new and amended performance standards, given in annexes 9, 10, and 11, in accordance with resolution A.825(19) and bring it to the attention of Governments, manufacturers, shipowners and others concerned for implementation.

7.28 The Sub-Committee invited the Committee to delete the following agenda items:

- .1 review of performance standards for devices to indicate speed and distance (resolution A.824(19));

- .2 performance standards for night vision equipment for HSC; and
- .3 performance standards for daylight signalling lamps,

from the work programme of the Sub-Committee, as the work had been completed.

#### **TECHNICAL WORKING GROUP**

7.29 The Sub-Committee instructed the Technical Working Group to consider a number of other documents submitted under items 6 and 7. The outcome of the Working Group's discussion related to these documents concerning Guidelines on Ergonomic Criteria for Bridge Equipment and Layout and revision of performance standards for shipborne satellite radionavigational receivers would be circulated under the appropriate agenda item to NAV 46.

7.30 Members were invited to consider the report of the Technical Working Group, when circulated, and submit comments and proposals thereon for consideration at NAV 46.

### **8 ITU MATTERS, INCLUDING RADIOCOMMUNICATION ITU-R STUDY GROUP 8 MATTERS**

8.1 The Sub-Committee considered NAV 45/8 (Secretariat) containing the complete text of the Question approved by correspondence since the last Radiocommunication Assembly assigned to Study Group 8 (Question ITU-R No. 216-1/8 on Compatibility of radionavigation and radiolocation services operating in the bands 2 900 – 3 300 MHz and 5 350 – 5 650 MHz).

8.2 The Sub-Committee was of the opinion that Question No. 216-1/8 concerned ITU compatibility studies of services operating in the band 2 900 – 3 300 MHz which is used in part by the shipping industry for 3 GHz (10 cm or S band) radars. It was realized that an increasing number of mobile communication service providers are making plans to operate in and around the 3 GHz radar band and that this band is under extreme threat. The band moreover is of great importance to the Organization because of the superior performance of 3 GHz radars under adverse environmental conditions; many ships use the 3 GHz radar as their primary radar. The SOLAS Convention, however, limits the mandatory requirement for radar to a 9 GHz (3 cm or X band) radar as this equipment provides compatibility with the SART for the GMDSS.

8.3 Therefore, the Sub-Committee, being of the opinion that better protection could be sought for the 3 GHz band if there would be a clearer SOLAS requirement for the carriage of a 3 GHz radar, agreed the appropriate modifications to regulation V/20.

8.4 The Sub-Committee considered NAV 45/8/1 (United States) regarding radio spectrum reallocations which would be considered by the ITU World Radiocommunication Conference in May/June 2000 (WRC-2000) and which could adversely affect the safety of maritime navigation using global navigation satellite systems and 3 GHz radars. Additionally, handheld mobile-satellite telephones could interfere with GNSS systems.

8.5 Being informed that COMSAR 4 had developed the IMO position to WRC-2000 (COMSAR 4/14, annex 6) and covered the above-mentioned matters, the Sub-Committee was of the opinion that the IMO position should be expanded with some sentences from NAV 45/8/1 and instructed the Secretariat to add the following:

- .1 “If an air traffic control radar operating near a port were to operate in this band used by marine radars, ships entering that port would likely be prevented from using their

3 GHz radar. In that situation, ships would be limited to using 9 GHz radar only. In adverse weather conditions, 3 GHz radar has far superior performance compared to 9 GHz radar, and such a restriction on the use of radar could cause a hazard to navigation.”

at the end of the second paragraph of Background under agenda item 1.6;

- .2 “Additionally, mobile-satellite services currently using bands adjacent to that used by GNSS, particularly handheld satellite telephones used aboard ships, can cause interference to shipboard GNSS systems. The potential for interference from ship passengers using handheld satellite telephones to shipboard GNSS systems is significant.”

at the end of Background under agenda item 1.9; and

- .3 “Additionally, technical limits should be placed upon mobile-satellite systems using bands adjacent to 1559-1567 MHz to ensure no harmful interference occurs to global navigation satellite systems onboard ships.”

at the end of “IMO position” under agenda item 1.9.

8.6 The Sub-Committee noted NAV 45/INF.2 (Secretariat) informing on the action taken by the ITU-R Working Party 8B concerning a previous IMO liaison statement pointing out difficulties with a proposal to adopt more stringent (Category B) limits for spurious emissions for fixed VTS, as opposed to mobile, radars. WP 8B had drafted an appropriate footnote but it was reported that the ITU-R Task Group 1/5 had not finally adopted the footnote, so this issue would be determined on a local basis by national authorities.

8.7 The Sub-Committee noted the information provided by ICAO (NAV 45/INF.7) outlining an ICAO position on critical concern to civil aviation to be considered at WRC-2000 and was of the opinion that this position concurred with the IMO position on protection of the frequency bands for existing and future GNSS.

## **9 TRAINING AND CERTIFICATION OF MARITIME PILOTS AND REVISION OF RESOLUTION A.485(XII)**

9.1 The Sub-Committee noted that STW 29 had instructed the Secretariat to convey the relevant parts of its report, the proposed draft Recommendations on training and certification requirements for maritime pilots other than deep sea pilots, the United States proposal for guidance (STW 29/7/1), IMPA's submission to the Committee (MSC 69/20/2) and INTERTANKO's submission (STW 29/7/5) to the NAV Sub-Committee for consideration of the operational requirements.

9.2 The Sub-Committee further noted that MSC 69 had endorsed STW 29's invitation to the Sub-Committee to consider pilot training issues and had decided to include a high priority item on "Training and certification of maritime pilots and revision of resolution A.485(XII) (co-ordinated by STW)" in the STW Sub-Committee's and the Sub-Committee's work programme, with one session needed to complete the item.

9.3 The Sub-Committee recalled that at its forty-fourth session it had deferred consideration of the proposals of the United States (STW 29/7/1), IMPA (MSC 69/20/2) and INTERTANKO (STW 29/7/5) to NAV 45 and invited Members to submit comments and proposals for consideration at that session.

9.4 The Sub-Committee considered United States (STW 29/7/1), IMPA (MSC 69/20/2) and INTERTANKO (STW 27/7/5) and agreed a draft revised text of annex 2 - Recommendation on operational procedures for maritime pilots other than deep-sea pilots to resolution A.485(XII), given in annex 12.

9.5 The Sub-Committee instructed the Secretariat to convey the approved draft revised text to STW 31.

## **10 SAFETY OF PASSENGER SUBMERSIBLE CRAFT**

10.1 The Sub-Committee recalled that, at its forty-second session, following a submission by France (NAV 42/19), it had prepared an SN Circular, which was approved by MSC 67 as SN/Circ.188 on Regulations applicable to all civilian submarines or submersible craft in waters under French jurisdiction, requesting Member Governments to disseminate the information to ship owners and others concerned.

10.2 The Sub-Committee further recalled that, at its forty-fourth session it had decided to defer consideration of section 2.4.5 of the draft guidelines (DE 40/11/4, annex), referred to it by DE 41, until NAV 45 and had invited the Committee to extend the target completion date of safety of passenger submersible craft to 1999.

10.3 The Sub-Committee noted that DE 42 had agreed to invite COMSAR 4 and NAV 45 to deal with this matter, as their input is necessary in order to finalize the item at DE 43, as scheduled.

10.4 The Sub-Committee also noted that COMSAR 4 had approved section 2.4.6 on communications of the draft Guidelines for the design, construction and operation of passenger submersible craft (COMSAR 4/14, annex 12).

10.5 The Sub-Committee considered NAV 45/10 (Secretariat) and approved section 2.4.5 on navigation of the draft Guidelines for the design, construction and operation of passenger submersible craft, given in annex 13.

10.6 The Sub-Committee instructed the Secretariat to convey the approved section 2.4.5 to DE 43.

## **11 WORK PROGRAMME AND AGENDA FOR NAV 46**

11.1 The Sub-Committee noted that MSC 69 (MSC 69/22, paragraph 19.5), recalling its discussion regarding the issuance of circulars by sub-committees first and their request to the Committee to subsequently endorse the action taken, agreed, in principle, that the Guidelines should be amended to the effect that Sub-Committees should not, as a rule, issue circulars which are supposed to be issued only after approval by the Committees. This should only be permitted in exceptional cases, as may be prescribed in the guidelines.

11.2 The Sub-Committee also noted that MSC 71 had approved, subject to MEPC's concurrent decision, the draft revised Guidelines on the organization and method of work, as amended and set out in MSC 71/23, annex 17, for dissemination by means of an appropriate MSC/MEPC circular. The Secretariat had been authorized to restructure, if necessary, the Guidelines in a more logical and sequential manner, after they have also been approved by the MEPC (MSC 71/23, paragraph 19.11). MEPC 43 had approved with minor modifications of editorial nature the revised Guidelines and instructed the Secretariat to issue them as MSC/Circ.931 MEPC/Circ.366.

11.3 The Sub-Committee recalled that MSC 69, MSC 70 and MSC 71 had included in the Sub-Committee's work programme a number of new items as contained in the annex to document NAV 45/2/2.

11.4 The Sub-Committee considered the United Kingdom proposal (NAV 45/11) suggesting that the Sub-Committee starts work on “Performance Standards for bridge watch alarms” at NAV 46 with a view to completion at NAV 47, and its detailed justification for the urgent consideration of this matter is set out in MSC 71/20/4.

11.5 The Sub-Committee noting the decision of MSC 71, and subject to the concurrence of MSC 72, decided to add “Performance Standards for bridge watch alarms” to its Agenda for NAV 46.

11.6 The Sub-Committee noted the proposal by ICS (NAV 45/5/10) proposing a new work programme on “AIS operational matters” and dealt with this matter under agenda item 5.

11.7 The Sub-Committee was of the opinion that as per paragraph 14 of the revised Guidelines on the Organization and Method of Work of the MSC and MEPC and their subsidiary bodies (MSC/Circ.931 MEPC/Circ.366), the ICS proposal needed to be co-sponsored by a Member Government and submitted to the Committee’s next session.

11.8 The Sub-Committee, however, recalling its decision under agenda item 5 on revision of SOLAS chapter V regarding AIS carriage requirements decided to request the Committee to put a high priority item on Guidelines on Automatic Identification System (AIS) operational matters on its work programme.

11.9 The Sub-Committee noted that that MSC 71 had instructed NAV 45 to include in the provisional agenda for NAV 46 the item on “IMO Standard Marine Communication Phrases”.

11.10 Taking into account the progress made at this session and the provisions of the agenda management procedure, the Sub-Committee revised its work programme (NAV 45/WP.5) based on that approved by MSC 71 (NAV 45/2/2, annex 1) and prepared a revised work programme and provisional agenda for NAV 46, as set out in annexes 14 and 15 respectively, for consideration and approval by the Committee. While reviewing the work programme, the Sub-Committee agreed to invite the Committee to:

.1 delete the following work programme items as work on them has been completed:

.1.1	H.1	Revision of SOLAS chapter V	1999
.1.2	H.5	Performance standards for night vision equipment for high-speed craft	1999
.1.3	H.7	Training and certification of maritime pilots and revision of resolution A.485(XII)(co-ordinated by STW)	1999
.1.4	H.10	Revision of performance standards for devices to indicate speed and distance (resolution A.824(19))	1999
.1.5	L.1.1	performance standards for daylight signalling lamps	1999
.1.6	L.2	Safety of passenger submersible craft (co-ordinated by DE)	1999

- .2 extend the target completion date of the following work programme item:
  - .2.1 item H2 Guidelines on Ergonomic criteria for bridge equipment and layout; and
- .3 replace the number of sessions needed for completion by a target completion date, for the following work programme items:
  - .3.1 item H.3 IMO Standard Marine Communication Phrases - 2000;
  - .3.2 item H.9 Performance standards for bridge watch alarms - 2001;
  - .3.3 Item L.4 Integrated bridge systems (IBS) operational aspects - 2001
  - .3.4 item L.5 User requirements for heading systems - 2000;
- .4 include two new items:
  - .4.1 item H Guidelines for recording events related to navigation - 2 sessions
  - .4.2 item H Guidelines on Automatic Identification System (AIS) operational matters - 2 sessions

### **Arrangements for the next session**

11.11 The Sub-Committee anticipated that Working Groups on the following subjects may be established at NAV 46:

- .1 Ships' Routeing;
- .2 Technical matters; and
- .3 Issues relating to SOLAS chapter V.

### **Date of the next session**

11.12 The Sub-Committee noted that its forty-sixth session had been tentatively scheduled to take place from 10 to 14 July 2000.

## **12 ELECTION OF CHAIRMAN AND VICE-CHAIRMAN FOR 2000**

In accordance with rule 16 of the Rules of procedure of the Maritime Safety Committee, the Sub-Committee unanimously re-elected Mr. K. Polderman (The Netherlands) as Chairman and Dr. V.I. Peresypkin (Russian Federation) as Vice-Chairman for 2000.



## **13 ANY OTHER BUSINESS**

### **Improving ship/shore communications**

13.1 The Sub-Committee noted that MSC 70, as requested by the FAL Committee, had agreed to give high priority to the ship/shore communications aspect and instructed the DSC Sub-Committee, in co-operation with other sub-committees, as appropriate, to do the same, including the development of checklists and manuals, where appropriate.

13.2 The Sub-Committee further noted that it had not received information/guidance on the matter from the DSC Sub-Committee, and that a request might come from DSC 5 scheduled for 7-11 February 2000.

### **Draft guidelines on damage control plans**

13.3 The Sub-Committee recalled that STW 30, noting that damage control plans will be discussed at SLF 42 had recommended that the draft guidelines for damage control plans, and particularly the stability consequence diagram, be referred to the NAV Sub-Committee for comment on whether it provides single concise and clear information to ships' officers requiring information on a damaged vessel's stability. Following consideration by SLF 43 of comments made by NAV 45, the STW Sub-Committee might then be able to provide comments on any related training issues at STW 31.

13.4 The Sub-Committee was informed that with regard to the above recommendation, SLF 42 recalling that SLF 41, had discussed the recommendation of the drafting group on the development of the Guidelines for damage control plans to refer the draft Guidelines to STW 30 and NAV 44 for comments and had agreed that only STW 30 should be invited to provide comments on the draft Guidelines.

13.5 The Sub-Committee noted also that SLF 42, therefore, had decided that no further action was needed in this respect.

### **Development of a code on polar navigation**

13.6 The Sub-Committee recalled that, at its forty-fourth session, it had given preliminary consideration to the matter, and, considering the heavy workload envisaged at NAV 45, invited the Committee to postpone further consideration of this issue until NAV 46. MSC 70 had agreed with this request and had decided that work should start at NAV 46.

13.7 The Sub-Committee noted that MSC 71, having also debated other related issues (such as the application of the Code to ships under 500 gross tonnage, fishing vessels and barges, and the possibility of dividing the Code into distinct parts applying to the two polar regions separately), had agreed, based on the proposals contained in document MSC 71/20/11 as amplified by the United States' delegation, to the following framework to be used by the correspondence group and the sub-committees involved as a basis for further work on this issue:

- .1 recommendatory guidelines should be developed only for SOLAS 74 ships operating in ice-covered waters, for dissemination under cover of an MSC circular, unless the DE Sub-Committee agrees that a different format would be more appropriate and the Committee so agrees;
- .2 the application of the guidelines in areas north of 60°N should be resolved so that ice-free waters in those areas are not covered;

- .3 Antarctic waters are to be excluded from the application of the guidelines, unless Antarctic Treaty members decide otherwise;
- .4 each sub-committee involved should conduct a thorough review of the parts of the guidelines falling under its purview to determine what value is being added by establishing the various proposed requirements, whether the issues in the guidelines are addressed elsewhere, and the implications of such requirements;
- .5 any provisions in the current guidelines, which are inconsistent with international law, including the provision for prior notification, should be removed;
- .6 any clauses that appear to indicate that they are mandatory should be redrafted in such a way that their recommendatory nature is clearly demonstrated;
- .7 only provisions additional to existing SOLAS requirements taking account of the climatic conditions of ice-covered waters should be included and the need for such additional provisions should be clearly demonstrated;
- .8 whether or not barges should be included in the guidelines was a matter to be discussed; and
- .9 any survey and certification provisions, which might be different to the corresponding SOLAS requirements, should also be discussed.

13.8 The Sub-Committee further noted that MSC 71 had instructed the DE (co-ordinator), BLG, FP, COMSAR, NAV, SLF and STW Sub-Committees to conduct their work on this issue in accordance with the approved framework with immediate effect, and had invited the MEPC to concur with this course of action. It also requested the Secretariat to convey its decisions on the issue to the aforementioned sub-committees and to the correspondence group established by DE 41 for appropriate action.

13.9 The Sub-Committee decided to invite Members to submit comments/proposals on this issue for consideration at NAV 46.

### **Course on operations in Antarctic Waters**

13.10 The delegation of Chile informed the Sub-Committee that the 8th Course on Operations in Antarctic Waters would take place in Valparaiso from the 18 to 27 October 1999 at the School for Antarctic Navigation "Piloto Luis Pardo Villalon", a branch of the General Directorate of Maritime Territory and Merchant Navy, of the Chilean Navy. The main objective of the course was to allow captains and deck officers who crew ships which sail in Antarctic waters to familiarize themselves with the procedures and regulations of the Antarctic Treaty, as well as to strengthen and update their navigational skills and operational security, with special emphasis on environmental and meteorological aspects which prevail in those waters and the protection of the marine environment. The course is divided into six modules, set over 8 working days, classes being expounded and interactive in Spanish. The course and documentation available is free of charge, whilst the cost of fares, accommodation and food should be borne by the participants.\*

\*

Those Members who might be interested can obtain more information from the following point of contact:

School of Antarctic Navigation "Piloto Luis Pardo Villalon" – Directemar  
 Address: Faro Punta Angeles, Playa Ancha, Valparaiso, Chile  
 Tel.: 56 32 208855 – 208856  
 Fax: 56 32 285898  
 E-mail: [cimar@directemar.cl](mailto:cimar@directemar.cl)  
 Telex: 330461 DGTMCK – 230602 DGTM CL

### **Status, application and entry into force of the revised HSC Code**

13.11 The Sub-Committee recalled that, at its forty-fourth session, although having received further proposals by Germany (NAV 44/10) and the United Kingdom (NAV 44/10/1) on this matter, it had agreed that it was premature to embark on a comprehensive review of chapter 13 of the HSC Code before finalization of relevant regulations in the draft revised chapter V. However, it also had agreed that such a comprehensive review would be necessary and invited the Committee to include in its work programme a new low priority item on "Comprehensive review of chapter 13 of the HSC Code" with two sessions needed for completion, and to delete the item "Revision of the High-Speed Craft Code".

13.12 The Sub-Committee noted that MSC 71 (MSC 71/23, paragraph 9.4.1), having considered the proposed procedure for approval, adoption and entry into force of amendments to SOLAS chapter X and the new HSC Code had decided, among other things, that DSC 5, DE 43 and the intersessional SLF Working Group should propose final additions and adjustments to the draft consolidated text and that COMSAR 4 in July 1999 and NAV 45 should also contribute.

13.13 Taking into account the above, and in accordance with paragraph 27 of the Guidelines on the organization and method of work (MSC/Circ.816/MEPC/Circ.331), the Secretariat submitted the draft text of Chapter 13 of the draft HSC Code (NAV 45/13/1 and attached annex), for the Sub-Committee's consideration and comments.

13.14 The Sub-Committee considered the draft text of Chapter 13 of the draft HSC Code but was of the opinion that this issue could not be finalized pending decisions on the revision of SOLAS chapter V, taking into account the inter-relationship between SOLAS chapter V and chapter 13 of the HSC Code. Furthermore, the Sub-Committee was of the opinion that revision of SOLAS chapter V should consequently include an amendment to SOLAS regulation X/3.1, which presently refers to the existing regulation V/12.

13.15 The Sub-Committee decided to forward the present draft text of Chapter 13 of the draft HSC Code (NAV 45/13/1, annex) to DE 43 with the provision that the text needed further amendment to align it with the new revised SOLAS chapter V.

13.16 Accordingly, the Sub-Committee requested the Committee to extend the target completion date to 2000, i.e. NAV 46. Members were invited to submit comments/proposals for consideration at NAV 46.

13.17 The Sub-Committee instructed the Secretariat to convey the outcome to DE 43.

### **Investigation into near misses**

13.18 The Sub-Committee noted that MSC 71 took note of the information provided by Japan in document MSC 71/INF.8 and agreed, as advised by the joint MSC/MEPC working group on the Human Element and Formal Safety Assessment, to refer it to NAV 45 for information.

13.19 The Sub-Committee also noted with interest the information provided by Japan (MSC 71/INF.8), presenting conclusions on the investigation into near misses emanating from the operations on ship's navigation bridges and highlighting the need for consideration of important human elements matters with regard to operations on the navigating bridge.

### **Standard Marine Communication Phrases (SMCPs)**

13.20 The Sub-Committee recalled that MSC 68 had considered draft "Standard Marine Communication Phrases (SMCPs)" prepared by NAV 42 and had approved their dissemination by

MSC/Circ.794. MSC 68 had also invited Member Governments and international organizations concerned to conduct trials using the SMCPs and to report the results of such trials well in advance for consideration by NAV 45, in order that the Sub-Committee could, in co-operation with the COMSAR and STW Sub-Committees, finalize the SMCPs. MSC 68 also had considered that, following this, a suitable draft Assembly resolution could be prepared for submission to the twenty-second session of the Assembly for adoption.

13.21 The Sub-Committee recalled further that MSC 71 (MSC 71/23, paragraph 20.33) had instructed NAV 45 to include, in the provisional agenda for NAV 46, an item on "IMO Standard Marine Communication Phrases".

13.22 The Sub-Committee considered on a preliminary basis NAV 45/13 (Secretariat) summarizing the comments received on the results of the trials by Chile, Croatia, Germany, Iceland, Italy, Ukraine, Hong Kong, China, and ISF.

13.23 The delegation of the United States stated that further work was needed to improve the Standard Marine Communication Phrases and agreed with the idea that a distinction could be made between a mandatory section based on the Standard Marine Navigational Vocabulary, and a guidance section which calls attention to other standard shipboard terms and phrases and which should be included in English language training. However, it did not believe that the mandatory section should be limited to vocabulary which is used for "external" (ship-to-ship and ship-to-shore) communications because a draft provision on using English on the bridge as included in the package of draft amendments to SOLAS chapter V, the mandatory vocabulary should include standard terms and phrases which are commonly used in conducting navigation, particularly when a pilot was on board.

13.24 The Sub-Committee decided to invite Members to submit comments/proposals on this issue for consideration at NAV 46, and instructed the Secretariat to convey its decision to STW 31 and COMSAR 5.

### **Implementation of a Universal AIS Pilot Test for the Port of Singapore - Ship Identification and Positioning System (SIPs)**

13.25 The Sub-Committee noted with interest information provided by Singapore (NAV 45/INF.4) concerning phase 1 of a Universal Automatic Identification System pilot test, which had been carried out by the Maritime and Port Authority of Singapore recently in the Singapore Strait and Singapore port waters. The specific objectives of the Singapore SIPS pilot test were to evaluate the operational and technical performance of the AIS transponder based on IMO recommended performance standards and to gain operational and technical experience. The analysis of the SIPS pilot test results for the trial period from 1 April 1999 to 30 June 1999 indicated that the performance of the SIPs, based on the IMO-adopted performance standard for an Universal AIS is satisfactory.

13.26 The delegation of Singapore reiterated the effectiveness of AIS technology to enhance safety of vessels especially in ports with heavy traffic.

### **Introduction to AIS in the Republic of Korea**

13.27 The Sub-Committee noted with interest the information provided by the Republic of Korea (NAV 45/INF.5) on its plan for the deployment of the 4S type AIS (Automatic Identification system), of which the AIS stations and relaying centres will be set up by July 2002 including information on the results of trial applications of satellite – AIS in the waters of the Republic of Korea.

### **Baltic Ferry Guidance and Information System (BAFEGIS)**

13.28 The Sub-Committee noted with interest the information provided by Sweden (NAV 45/INF.8) on the results of the trials( with AIS and ECDIS in the project “Baltic Ferry Guidance and Information System (BAFEGIS)” for the enhancement of the ferry safety between Malmö/Trelleborg in Sweden and Warnemünde/Travemünde in Germany. The test results indicated a considerable enhancement of safety of the participating ferries and owing to the relatively long range of the system, the VTS centres in the ferry ports were for the first time able to monitor the vessels on their entire route between Sweden and Germany.

### **Seminar on Formal Safety Assessment (FSA)**

13.29 The delegation of Japan informed the Sub-Committee about a seminar on Formal Safety Assessment which was scheduled to be held in Tokyo, Japan, on 26 October 1999. The seminar, which was organized by the Ministry of Transport and sponsored by the Ship and Ocean Foundation, was aimed at deepening the knowledge and understanding of the FSA for the parties/persons involved with shipping/ship building, the related manufacturing industry, research institutes related to ships and ship inspection organizations.

### **Expressions of appreciation**

13.30 The Sub-Committee expressed appreciation to Mr. Jorgen Rasmussen, Head, Navigation Section, Maritime Safety Division and Secretary of the Sub-Committee who had returned home for his valuable contribution to its work and wished him every success in his new duties.

## **14 ACTION REQUESTED OF THE COMMITTEE**

14.1 The Committee, at its seventy-second session, is invited to:

- .1 adopt, in accordance with resolution A.858(20), the amended traffic separation schemes including associated routeing measures in the approaches to Iquique and Punta Arenas (paragraph 3.2, annex 2);
- .2 adopt, in accordance with resolution A.858(20), the new traffic separation schemes including associated routeing measures along the Peruvian coast (paragraph 3.5, annex 2);
- .3 adopt, in accordance with resolution A.858(20), the proposed routeing system in the waters Off Chengsan Jian Promontory (paragraphs 3.8 to 3.11 and part of annex 2) and the associated mandatory ship reporting system (paragraph 3.7, annex 4);
- .4 adopt, in accordance with resolution A.858(20), the new recommended tracks for navigation of certain ships off the coast of California (paragraph 3.15, annex 3);
- .5 adopt, in accordance with resolution A.858(20), the abolition of the “Areas to be avoided” around EC1 and EC3 lighted buoys (paragraph 3.17, annex 3);
- .6 adopt, in accordance with resolution A.858(20), the proposed “Area to be avoided” at the approaches to the ports of Matanzas and Cordenas (paragraph 3.21, annex 3);
- .7 note the endorsement by the Sub-Committee of the draft Assembly resolution on Identification and protection of special areas and particularly sensitive sea areas, prepared by MEPC 43 (paragraph 3.25);

- .8 note that the Sub-Committee did not support the proposal by the United Kingdom to establish criteria for ships' bunker fuels to be used in provisions for ships' routing (paragraph 3.30);
- .9 note that, with regard to the proposal by Spain on optimization of coastal ship-to-shore communications in mandatory ship reporting systems, the Sub-Committee recommended that the matter be referred to IALA for consideration, and further suggested that Spain be invited to conduct trials of prototype tests and present their results to the Committee (paragraph 3.36);
- .10 note that, as authorized by the Committee, the Sub-Committee submitted the draft Assembly resolution on Guidelines for voyage planning directly to the twenty-first session of the Assembly for adoption (paragraph 3.39, annex 5);
- .11 consider and approve the completed revised draft text of SOLAS chapter V together with the associated draft MSC resolution for adoption at MSC 73 (paragraph 5.90, annex 6);
- .12 consider and approve the list of details of navigational systems and equipment as possible consequential amendments to SOLAS 1974 and the 1988 SOLAS Protocol (paragraph 5.92, annex 7);
- .13 approve the draft SN Circular containing guidance on chart datums and the accuracy of positions on charts (paragraph 7.12, annex 8);
- .14 adopt, in accordance with resolution A.825(19), the proposed draft MSC resolution on Performance Standards for night vision equipment for high-speed Craft (paragraph 7.19, annex 9);
- .15 adopt, in accordance with resolution A.825(19), the proposed draft MSC resolution on Performance Standards for daylight signalling lamps (paragraph 7.21, annex 10);
- .16 adopt, in accordance with resolution A.825(19), the proposed draft MSC resolution on Revised Performance Standards for devices to measure and indicate speed and distance (paragraph 7.24, annex 11);
- .17 note that the Sub-Committee agreed a draft revised text of annex 2 - Recommendation on operational procedures for maritime pilots other than deep-sea to resolution A.485(XII) and instructed the Secretariat to convey it to STW 31 (paragraphs 9.4 and 9.5, annex 12);
- .18 note that the Sub-Committee approved section 2.4.5 on navigation of the draft Guidelines for the design, construction and operation of passenger submersible craft and instructed the Secretariat to convey it to DE 43 (paragraphs 10.5 and 10.6, annex 13); and
- .19 approve the report in general.

14.2 In reviewing the work programme of the Sub-Committee, the Committee is invited to consider the revised work programme suggested by the Sub-Committee (annex 14) in general and, in particular, to:

- .1 note that, with regard to the proposal by Spain on optimization of coastal ship-to-shore communications in mandatory ship reporting systems, the Sub-Committee felt

that further data and research was needed before the decision could be taken on the inclusion of an agenda item on watch alarms and optimization of ship-to-shore communications, (paragraph 3.35);

- .2 extend the target completion date of “Guidelines on ergonomic criteria for bridge equipment and layout to 2000 (paragraph 6.5);
- .3 replace the number of sessions needed for completion by a target completion date for “IMO Standard Marine Communication Phrases” by 2000 (paragraph 13.24);
- .4 replace the number of sessions needed for completion by a target completion date for “Performance Standards for bridge watch alarms” by 2000;
- .5 replace the number of sessions needed for completion by a target completion date for “Integrated bridge systems (IBS) operational aspects” by 2001;
- .6 replace the number of sessions needed for completion by a target completion date for “User requirements for heading systems” by 2000;
- .7 include a high-priority item on “Guidelines relating to SOLAS chapter V” with two sessions needed for completion (paragraph 5.45);
- .8 consider the present item L.6 "Comprehensive review of chapter 13 of the HSC Code" as a high-priority item H.9 with a target completion date of 2000;
- .9 delete “Revision of SOLAS chapter V”, as the task has been completed;
- .10 delete “Performance standards for night vision equipment for high-speed craft”, as the task has been completed;
- .11 delete “Revision of performance standards for devices to indicate speed and distance (resolution A.824(19))”, as the task has been completed;
- .12 delete “Performance standards for daylight signalling lamps”, as the task has been completed;
- .13 delete “Training and certification of maritime pilots and revision of resolution A.485(XII) (co-ordinated by STW)”, as the task has been completed; and
- .14 delete “Safety of passenger submersible craft (co-ordinated by DE)”, as the task has been completed.

14.3 The Committee is also invited to approve the proposed agenda for the Sub-Committee’s forty-sixth session (annex 15) which has been developed using the agenda management procedure.

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**ANNEX 1****AGENDA FOR THE FORTY-FIFTH SESSION  
INCLUDING A LIST OF DOCUMENTS****1 Adoption of the agenda**

NAV 45/1	Secretariat
NAV 45/1/1	Secretariat

**2 Decisions of other IMO bodies**

NAV 45/2	Secretariat
NAV 45/2/1	Secretariat
NAV 45/2/2	Secretariat
NAV 45/2/3	Secretariat

**3 Routeing of ships, ship reporting and related matters (including voyage planning)**

NAV 45/3 and Rev.1	Chile
NAV 45/3/1	Peru
NAV 45/3/2	ICS
NAV 45/3/3	China
NAV 45/3/4	United States
NAV 45/3/5	United Kingdom
NAV 45/3/6	Cuba
NAV 45/3/7	Bahamas and Panama
NAV 45/INF.3	Canada
MSC 71/20/3	United Kingdom
MSC 71/20/12	Spain
MEPC 42/10/3	Cuba
MEPC 43/21, annex 6	Report of MEPC 43

**4 Amendments to the COLREGs**

NAV 45/4	ISAF
NAV 45/4/1	Hong Kong, China
NAV 45/4/2	Russian Federation
NAV 45/4/3	Japan
NAV 45/4/4	ISAF
MSC 69/20/4	Japan

**5 Revision of SOLAS chapter V**

NAV 45/5	Working Group
NAV 45/5/1	ICS, BIMCO, INTERCARGO, INTERTANKO, OCIMF and SIGTTO
NAV 45/5/2	IHO
NAV 45/5/3	CIRM

NAV 45/5/4	Denmark, Finland, Germany, Ireland, Italy, the Netherlands, Portugal, Sweden and United Kingdom
NAV 45/5/5	Hong Kong, China
NAV 45/5/6	CIRM
NAV 45/5/7	United Kingdom
NAV 45/5/8	CIRM
NAV 45/5/9	United States
NAV 45/5/10*	ICS
NAV 45/5/11	Japan
NAV 45/5/12	Japan
NAV 45/5/13	ICS
NAV 45/5/14	ISAF
NAV 45/5/15	Japan
MSC 70/11/5	Japan
MSC 70/11/7	Japan
NAV 44/5/5	FOEI
NAV 44/5/6	United States
NAV 44/5/10	Italy
NAV 44/5/11	Russian Federation
NAV 44/5/12	United Kingdom
NAV 44/5/13	Germany
NAV 44/5/14	Japan
NAV 44/5/15	Japan
NAV 44/5/16	Japan
NAV 43/5	Netherlands and Germany
NAV 43/5/2	United States
NAV 43/5/3	Russian Federation
NAV 43/5/5	Sweden
NAV 43/5/7	Greece
NAV 43/5/8	Japan
NAV 43/7/17	IHO

## **6 Ergonomic criteria for bridge equipment and layout**

NAV 45/6	Germany
NAV 45/6/1	IEC

## **7 Navigational aids and related matters**

NAV 45/7	Technical Working Group
NAV 45/7/1	IEC
NAV 45/7/2	IHO
NAV 45/7/3	ISO
NAV 45/7/4	Denmark, Finland, Germany, the Netherlands, Norway and Spain
NAV 45/INF.6	ICAO
NAV 45/7/5	IEC
NAV 45/7/6	United Kingdom
NAV 45/7/7	Sweden

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\* Also submitted under agenda item 11

**8 ITU matters including radiocommunications ITU-R study Group 8 Matters**

NAV 45/8	Secretariat
NAV 45/8/1	United States
NAV 45/INF.2	Secretariat
NAV 45/INF.7	ICAO

**9 Training and certification of maritime pilots and revision of resolution A.485(XII)**

STW 29/7/1	United States
STW 29/7/5	INTERTANKO
MSC 69/20/2	IMPA

**10 Safety of passenger submersible craft**

NAV 45/10	Secretariat
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**11 Work programme and agenda for NAV 46**

NAV 45/11	United Kingdom
NAV 45/5/10*	ICS

**12 Election of Chairman and Vice Chairman for 2000**

[No documents submitted]

**13 Any other business**

NAV 45/13	Secretariat
NAV 45/13/1	Secretariat
MSC 71/INF.8	Japan
NAV 45/INF.4	Singapore
NAV 45/INF.5	Republic of Korea
NAV 45/INF.8	Sweden

**14 Report to the Maritime Safety Committee**

[No documents submitted]

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\* Also submitted under agenda item 5



## ANNEX 2

**NEW AND AMENDED TRAFFIC SEPARATION SCHEMES  
AND ASSOCIATED ROUTEING MEASURES**

**AMENDMENTS TO THE TRAFFIC SEPARATION SCHEME IN THE APPROACHES TO  
IQUIQUE**

Reference chart: Chilean Hydrographic Office 104, 1988 edition.

**Note:** This chart is based on South American 1969 Datum

**1.1** The amended traffic separation scheme in the approaches to Iquique will consist of:

4 traffic lanes; and  
3 traffic separation zones between them.

**1.2** The direction of navigation will be:

traffic lanes for entry to the port:  
with bearings 103°(T) and 052°(T) respectively.

traffic lanes for exit from the port  
with bearings 310°(T) and 257°(T) respectively.

**1.3** Description of the amended traffic separation scheme in the approaches to Iquique:

(a) Northern limit, consisting of a line connecting the following geographical positions:

- |     |              |               |
|-----|--------------|---------------|
| (1) | 20° 10'.40 S | 070° 10'.80 W |
| (2) | 20° 11'.10 S | 070° 10'.18 W |

(b) Southern limit, consisting of a line connecting the following geographical positions:

- |     |              |               |
|-----|--------------|---------------|
| (3) | 20° 12'.60 S | 070° 10'.95 W |
| (4) | 20° 11'.87 S | 070° 10'.17 W |

(c) Traffic separation zones, consisting of the following:

- The area within a line connecting the following geographical positions:

- |     |              |               |
|-----|--------------|---------------|
| (5) | 20° 10'.72 S | 070° 11'.22 W |
| (6) | 20° 11'.22 S | 070° 10'.30 W |
| (7) | 20° 11'.28 S | 070° 10'.33 W |
| (8) | 20° 10'.88 S | 070° 11'.32 W |

- The area within a line connecting the following geographical positions:

- |      |              |               |
|------|--------------|---------------|
| (9)  | 20° 11'.38 S | 070° 11'.45 W |
| (10) | 20° 11'.45 S | 070° 10'.38 W |
| (11) | 20° 11'.52 S | 070° 10'.38 W |
| (12) | 20° 11'.60 S | 070° 11'.45 W |

- The area within a line connecting the following geographical positions:

(13)	20° 12'.10 S	070° 11'.30 W
(14)	20° 11'.68 S	070° 10'.33 W
(15)	20° 11'.73 S	070° 10'.30 W
(16)	20° 12'.28 S	070° 11'.18 W

- (d) Traffic lanes for entry to the port, at the following positions:

Direction east

(17)	20° 11'.25 S	070° 10'.85 W
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Direction north-east

(18)	20° 12'.10 S	070° 10'.68 W
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- (e) Traffic lanes for exit from the port, at the following positions:

Direction north-west:

(19)	20° 10'.87 S	070° 10'.60 W
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Direction west

(20)	20° 11'.72 S	070° 10'.38 W
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## **AMENDMENTS TO THE TRAFFIC SEPARATION SCHEME IN THE APPROACHES TO PUNTA ARENAS**

Reference chart: Chilean Hydrographic Office 11410, (1968) edition.

**Note:** This chart is based on South American 1969 Datum

- 2.1** The amended traffic separation scheme in the approaches to Punta Arenas will consist of:

2 traffic lanes; and  
1 traffic separation zone

- 2.2** The direction of navigation will be:

Traffic lane for entry into the port  
True bearing 296°

Traffic for exit from the port:  
True bearing 129°

## **2.3 Description of the amended traffic separation scheme in the approaches to Punta Arenas:**

(a) Northern limit, consisting of a line connecting the following geographical positions:

- (1) 53°10'.25 S 070°49'.90 W
- (2) 53°10'.90 S 070°46'.65 W

(b) Southern limit, consisting of a line connecting the following geographical positions:

- (3) 53°11'.42 S 070°51'.07 W
- (4) 53°12'.80 S 070°48'.70 W

(c) Traffic separation zones, the area within a line connecting the following geographical positions:

- (5) 53°10'.65 S 070°50'.30 W
- (6) 53°11'.72 S 070°47'.50 W
- (7) 53°11'.02 S 070°50'.67 W
- (8) 53°12'.03 S 070°47'.85 W

(d) Traffic lanes for entry to the port, at the following position:

- (9) 53°11'.00 S 070°48'.30 W

(e) Traffic lanes for exit from the port, at the following position:

- (10) 53°11'.80 S 070°49'.60 W

## **DESCRIPTIONS OF FOUR NEW ROUTEING MEASURES OFF THE COAST OF PERU**

### **LANDFALL AND APPROACHES TO PAITA BAY**

Reference charts: PERU - HIDRONAV – 1133 Ed.1997, Rev.1998  
PERU - HIDRONAV - 1150 Ed.1987, Rev.1997

**Note:** these charts are based on World Geodesic System (WGS-84 Datum)

### **Description of traffic separation scheme**

The traffic separation scheme for the approaches to Paita Bay consists of the following:

(a) A separation zone bounded by a line connecting the following geographical points:

- (1) 05°02'.06 S; 81°08'.95 W
- (2) 05°01'.80 S; 81°13'.14 W
- (3) 05°02'.77 S; 81°13'.14 W
- (4) 05°02'.52 S; 81°08'.95 W

(b) A traffic lane for westbound traffic, between the separation zone and a line connecting the following geographical points:

(5) 05°00'.93 S; 81°08'.95 W

(6) 04°59'.63 S; 81°13'.14 W

(c) A traffic lane for eastbound traffic, between the separation zone and a line connecting the following geographical points:

(7) 05°04'.96 S; 81°13'.14 W

(8) 05°03'.65 S; 81°08'.95 W

## **APPROACHES TO PUERTO CALLAO**

Reference charts: PERU - HIDRONAV - 1396 Ed. 1984, Rev.1996

**Note:** this chart is based on World Geodesic System (WGS-84 Datum)

### **Description of traffic separation scheme**

The traffic separation scheme for the approaches to Puerto Callao consists of three parts:

#### **Part I**

##### **Northwest approaches**

(a) A separation zone bounded by a line connecting the following geographical points:

(1) 12°01'.14 S; 77°15'.06 W

(3) 12°00'.07 S; 77°16'.57 W

(2) 11°59'.86 S; 77°16'.36 W

(4) 12°01'.31 S; 77°15'.31 W

(b) A traffic lane for northwestbound traffic, between the separation zone and a line connecting the following geographical points:

(5) 12°01'.01 S; 77°14'.28 W

(6) 11°59'.26 S; 77°15'.70 W

(c) A traffic lane for southeastbound traffic, between the separation zone and a line connecting the following geographical points:

(7) 12°00'.70 S; 77°17'.21 W

(8) 12°01'.78 S; 77°15'.61 W

#### **Part II**

##### **Southwest approaches**

(a) A separation zone bounded by a line connecting the following geographical points:

(9) 12°02'.50 S; 77°15'.56 W

(11) 12°03'.72 S; 77°16'.89 W

(10) 12°03'.50 S; 77°17'.08 W

(12) 12°02'.78 S; 77°15'.40 W

(b) A traffic lane for southwestbound traffic, between the separation zone and a line connecting the following geographical points:

(13) 12°01'.92 S; 77°15'.65 W

(14) 12°02'.80 S; 77°17'.81 W



(c) A traffic lane for northeastbound traffic, between the separation zone and a line connecting the following geographical points:

(15) 12°04'.40 S; 77°16'.20 W

(16) 12°03'.00 S; 77°14'.87 W

### **Part III**

#### **Main shipping channel**

(a) A separation zone bounded by a line connecting the following geographical points:

(17) 12°02'.62 S; 77°11'.00 W

(18) 12°02'.16 S; 77°13'.63 W

(19) 12°02'.28 S; 77°13'.65 W

(b) A traffic lane for eastbound traffic, between the separation zone and a line connecting the following geographical points:

(20) 12°02'.44 S; 77°13'.71 W

(21) 12°02'.78 S; 77°11'.00W

(c) A traffic lane for westbound traffic, between the separation zone and a line connecting the following geographical points:

(22) 12°02'.47 S; 77°11'.00 W

(23) 12°02'.00 S; 77°13'.63 W

#### **Precautionary area**

A precautionary area of 1 mile in radius, centred on the following geographical position:

(24) 12°02'.05 S; 77°14'.64 W

#### **Area to be avoided**

There is a circular area to be avoided of 0.11 miles radius (200 metres, 1.1 cables) at the following geographical position:

(24) 12°02'.05 S; 77°14'.64 W

### **LANDFALL AND APPROACHES TO PUERTO SAN MARTIN**

Reference charts: PERU - HIDRONAV - 226 Ed. 1997  
PERU - HIDRONAV – 2171 Ed.1980 Rev.1996  
PERU - HIDRONAV - 2172 Ed.1978 Rev.1997

**Note:** these charts are based on World Geodesic System (WGS-84 Datum)

#### **Description of traffic separation scheme**

The traffic separation scheme for the landfall and approaches to Puerto San Martin consists of three parts:

## **Part I**

### **Northern approaches**

(a) A separation zone bounded by a line connecting the following geographical points:

- |                              |                              |
|------------------------------|------------------------------|
| (1) 13°41'.62 S; 76°17'.60 W | (3) 13°36'.80 S; 76°19'.20 W |
| (2) 13°36'.80 S; 76°18'.85 W | (4) 13°41'.60 S; 76°17'.90 W |

(b) A traffic lane for northbound traffic, between the separation zone and a line connecting the following geographical points:

- |                              |                              |
|------------------------------|------------------------------|
| (5) 13°41'.65 S; 76°17'.00 W | (6) 13°36'.80 S; 76°18'.35 W |
|------------------------------|------------------------------|

(c) A traffic lane for southbound traffic, between the separation zone and a line connecting the following geographical points:

- |                              |                              |
|------------------------------|------------------------------|
| (7) 13°36'.80 S; 76°19'.70 W | (8) 13°41'.58 S; 76°18'.40 W |
|------------------------------|------------------------------|

## **Part II**

### **Western approaches**

(a) A separation zone bounded by a line connecting the following geographical points:

- |                               |                               |
|-------------------------------|-------------------------------|
| (9) 13°42'.20 S; 76°18'.20 W  | (11) 13°42'.20 S; 76°25'.00 W |
| (10) 13°41'.80 S; 76°25'.00 W | (12) 13°42'.65 S; 76°18'.10 W |

(b) A traffic lane for westbound traffic, between the separation zone and a line connecting the following geographical points:

- |                              |                               |
|------------------------------|-------------------------------|
| (8) 13°41'.58 S; 76°18'.40 W | (13) 13°41'.10 S; 76°25'.00 W |
|------------------------------|-------------------------------|

(c) A traffic lane for eastbound traffic, between the separation zone and a line connecting the following geographical points:

- |                               |                               |
|-------------------------------|-------------------------------|
| (14) 13°42'.85 S; 76°25'.00 W | (15) 13°43'.30 S; 76°17'.90 W |
|-------------------------------|-------------------------------|

## **Part III**

### **Approach to the port**

(a) A separation zone bounded by a line connecting the following geographical points:

- |                               |                               |
|-------------------------------|-------------------------------|
| (16) 13°43'.34 S; 76°17'.05 W | (18) 13°44'.58 S; 76°17'.10 W |
| (17) 13°44'.60 S; 76°16'.70 W | (19) 13°43'.32 S; 76°17'.50 W |

(b) A traffic lane for northbound traffic, between the separation zone and a line connecting the following geographical points:

- |                               |                               |
|-------------------------------|-------------------------------|
| (20) 13°43'.36 S; 76°16'.55 W | (21) 13°44'.62 S; 76°16'.20 W |
|-------------------------------|-------------------------------|

(c) A traffic lane for southbound traffic, between the separation zone and a line connecting the following geographical points:

- |                               |                               |
|-------------------------------|-------------------------------|
| (15) 13°43'.30 S; 76°17'.90 W | (22) 13°44'.50 S; 76°17'.60 W |
|-------------------------------|-------------------------------|

### **Precautionary area**

A precautionary area bounded by a line connecting the following geographical points is established between the northern and western approaches and the approach to the port:

- |                              |                               |
|------------------------------|-------------------------------|
| (5) 13°41'.65 S; 76°17'.00 W | (15) 13°43'.30 S; 76°17'.90 W |
| (8) 13°41'.58 S; 76°18'.40 W | (20) 13°43'.36 S; 76°16'.55 W |

### **Area to be avoided**

There is a circular area to be avoided of 0.2 miles radius (370 metres, 2 cables) centred on the following geographical position:

- (23) 13°42'.48 S; 76°17'.45W

## **LANDFALL AND APPROACHES TO PUERTO ILO**

Reference charts: PERU - HIDRONAV – 2350 Ed.1980, Rev.1991  
PERU - HIDRONAV - 3245 Ed.1995, Rev.1997

**Note:** these charts are based on World Geodesic System (WGS-84 Datum)

### **Description of traffic separation scheme**

The traffic separation scheme for the landfall and approaches to Puerto Ilo consists of the following:

(a) A separation zone bounded by a line connecting the following geographical points:

- |                              |                              |
|------------------------------|------------------------------|
| (1) 17°38'.20 S; 71°24'.10 W | (3) 17°39'.20 S; 71°27'.00 W |
| (2) 17°38'.20 S; 71°27'.00 W | (4) 17°39'.20 S; 71°24'.10 W |

(b) A traffic lane for westbound traffic, between the separation zone and a line connecting the following geographical points:

- |                              |                              |
|------------------------------|------------------------------|
| (5) 17°37'.40 S; 71°24'.10 W | (6) 17°36'.20 S; 71°27'.00 W |
|------------------------------|------------------------------|

(c) A traffic lane for eastbound traffic, between the separation zone and a line connecting the following geographical points:

- |                              |                              |
|------------------------------|------------------------------|
| (7) 17°41'.35 S; 71°27'.00 W | (8) 17°40'.00 S; 71°24'.10 W |
|------------------------------|------------------------------|

## **SHIPS' ROUTEING SYSTEM IN THE WATERS OFF CHENGSHAN JIAO PROMONTORY**

Reference charts: Chinese charts 9701, 9304, and 9305.

**Note:** These charts are based on WGS-84 Datum

The ships' routeing system in the waters off Chengshan Jiao promontory consists of the traffic separation scheme, the inshore traffic zone and the precautionary area.

### **1 The traffic separation scheme**

- .1 The separation zone, two nautical miles wide, is centred upon the line connecting the following geographical positions:
  - (1) 37° 31'.18 N 122° 45'.40 E
  - (2) 37° 25'.29 N 122° 49'.68 E
  - (3) 37° 11'.60 N 122° 49'.68 E
- .2 The inner limit of the traffic separation scheme is the line connecting the following geographical positions:
  - (4) 37° 29'.69 N 122° 42'.13 E
  - (5) 37° 24'.49 N 122° 45'.91 E
  - (6) 37° 11'.60 N 122° 45'.91 E
- .3 The outer limit of the traffic separation scheme is the line connecting the following geographical positions:
  - (7) 37° 32'.69 N 122° 48'.68 E
  - (8) 37° 26'.09 N 122° 53'.46 E
  - (9) 37° 11'.60 N 122° 53'.46 E
- .4 The traffic lane for northbound traffic, two miles wide, is established between the separation zone and the outer limit of the traffic separation scheme. The main traffic directions are 000° and 330°.
- .5 The traffic lane for southbound traffic, two miles wide, is established between the separation zone and the inner limit of the traffic separation scheme. The main traffic directions are 150° and 180°.

### **2 The inshore traffic zone**

The inshore traffic zone is the waters between the inner limit of the traffic separation scheme and the adjacent coast.

### **3 The precautionary area**

The precautionary area is the area with the geographical position 37° 34'.65 N, 122° 42'.88 E as the centre and 5 miles as the radius.

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**ANNEX 3****ROUTEING MEASURES OTHER THAN TRAFFIC SEPARATION SCHEMES****RECOMMENDED TRACKS OFF THE CALIFORNIA COAST FOR SHIPS OF 300 GROSS TONNAGE AND ABOVE AND FOR SHIPS CARRYING HAZARDOUS CARGO IN BULK**

Reference charts: NDAA 18022, 18880

**Note:** These charts are based on WGS-84 Datum.

- 1 Northbound ships of 300 gross tonnage and above (other than those described in paragraphs 3 and 4 below) should follow the route established by a recommended track between the following two points:
  - .1 36° 18'.31 N; 122° 12'.79 W (15 miles off Point Sur);
  - .2 37° 10'.86 N; 122° 39'.74 W (12.7 miles off Pigeon Point).
- 2 Southbound ships of 300 gross tonnage and above (other than those described in paragraphs 3 and 4 below) should follow the route established by a recommended track between the following two points:
  - .1 37° 10'.83 N; 122° 43'.87 W (16 miles off Pigeon Point);
  - .2 36° 18'.29 N; 122° 18'. 98 W (20 miles off Point Sur).
- 3 Northbound ships carrying hazardous cargo in bulk should follow the route established by a recommended track between the following two points:
  - .1 36° 18'.27 N; 122° 25'.16 W (25 miles off Point Sur);
  - .2 37° 28'.4 N; 123° 04'.9 W (25 miles off Pigeon Point).
- 4 Southbound ships carrying hazardous cargo in bulk should follow the route established by a recommended track between the following two points:
  - .1 37° 28'.4 N; 123° 11'.8 W (30 miles off Pigeon Point);
  - .2 36° 17'.9 N; 122° 31'.9 W (30 miles off Point Sur).

**Note:** Ships carrying hazardous cargo in bulk when entering or leaving San Francisco should use the western traffic separation scheme.

**AREA TO BE AVOIDED AROUND EC 1 AND EC 3 LIGHTED BUOYS**

Reference chart: BA 2656, 1999 edition.

**Note:** This chart is based on (OSGB36 Datum).

### **Description of the area to be avoided**

- 1 Abolish the area to be avoided centred at position of EC1 Lighted Buoy, position:  
Latitude 50° 05'.90 N,  
Longitude 01° 48'.35 W.
- 2 Abolish the area to be avoided centred at position of EC3 Lighted Buoy, position:  
Latitude 50° 18'.30 N  
Longitude 00° 36'.10 W.

### **AREA TO BE AVOIDED IN THE ACCESS ROUTES TO THE PORTS OF MATANZAS AND CARDENAS**

Reference chart: ICH 11425 (Edition of 01/08/1998)

**Note:** This chart is based on North American Datum (27).

### **Description of the area to be avoided**

The area described below should be avoided by all ships over 150 gross tonnage, for reasons of conservation of unique biodiversity, nature and beautiful scenery.

The area to be avoided lies within the coastline of the province of Matanzas and a line connecting the following geographical points:

- |     |              |             |                        |
|-----|--------------|-------------|------------------------|
| (1) | 23°05'.60 N, | 81°28'.50 W | Punta Maya Lighthouse  |
| (2) | 23°10'.60 N, | 81°28'.50 W |                        |
| (3) | 23°19'.50 N, | 81°11'.50 W |                        |
| (4) | 23°14'.60 N, | 81°07'.20 W | Cayo Piedras del Norte |
| (5) | 23°11'.50 N, | 81°07'.20 W | Punta Las Morlas       |

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**ANNEX 4**  
**MANDATORY SHIP REPORTING SYSTEM**  
**DRAFT RESOLUTION MSC.[...](72)**  
**adopted on .. May 2000**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO regulation V/8-1 of the International Convention for the Safety of Life at Sea (SOLAS), 1972 concerning the adoption by the Organization of ship reporting systems,

RECALLING FURTHER resolution A.858(20) which authorizes the Committee to perform the function of adopting ship reporting systems on behalf of the Organization,

TAKING INTO ACCOUNT the Guidelines and criteria for ship reporting systems adopted by resolution MSC.43(64),

HAVING CONSIDERED the recommendations of the Sub-Committee on Safety of Navigation at its forty-fifth session,

1. ADOPTS, in accordance with SOLAS regulation V/8-1, the mandatory ship reporting system Off Chengshan Jiao Promontory area, as described in the Annex to the present resolution;
2. DECIDES that the said mandatory ship reporting system will enter into force at 0000 hours UTC on [...December 2000];
3. REQUESTS the Secretary-General to bring this resolution and its Annex to the attention of Member Governments and Contracting Governments to the SOLAS Convention.

## ANNEX

### **Description of the Mandatory Ship Reporting System for the Waters Off Chengshan Jiao Promontory**

#### **1 Categories of ships required to participate in the system**

The following vessels are required to participate in the system: fishing vessels with a length of 24 metres and above, cargo ships of 300 gross tonnage and above, and passenger ships as defined in Chapter 1 of 1974 SOLAS, as amended.

#### **2 Geographical coverage of the system and the numbers and editions of the reference charts used for the delineation of the system**

The waters covered by the Ship Reporting System is the water area with the VTS centre (geographical position is 37° 23'.65 N, 122° 42'.12 E) as the centre and 24 miles as the radius.

The relevant charts are Chinese charts No 9701, 9304 and 9305. Chart datum is World Geodetic System 1984, WGS-84.

#### **3 Format, reporting time and geographical positions for submitting reports, authority to whom the reports should be sent, available services**

##### **3.1 Format**

The format for reporting is as set forth in paragraph 2 of the appendix to Assembly resolution A.851(20).

A	Name of ship, call sign, and IMO number (if applicable)
C or D	Position (latitude and longitude or in relation to a landmark)
E	Course
F	Speed
G	Port of departure
I	Port of destination (optional)
Q	Defects and limitation (vessels towing are to report length of tow and name of object in tow)
U	Overall length and gross tonnage

##### **3.2 Content and geographical position for submitting reports**

- .1 Participating vessels are to report the information in paragraph 3.1 when entering the ship reporting system area. Reports are not required when a participating vessel leaves the area.
- .2 When a participating vessel leaves a port that is located within the reporting area, it shall report its name, position, departure time, and port of destination.
- .3 When a participating vessel arrives at a port or anchorage within the reporting area, it shall report, on arrival at its berth, its name, position, and arrival time.



- .4 When a traffic incident or a pollution incident occurs within the reporting area, the vessel(s) shall immediately report the type, time, and location of the incident, extent of damage or pollution, and whether assistance is needed. The vessel(s) shall provide any additional information related to the incident, as requested by the shore-based authority.

### **3.3 Authority**

The competent authority is Yantai Maritime Safety Administration, China. The voice call sign is “Chengshan Jiao VTS Centre”.

## **4 Information to be provided to ships and procedures to be followed**

- .1 The Chengshan Jiao VTS Centre, where appropriate, will provide participating vessels with information such as conflicting vessel traffic, abnormal weather conditions, and maritime safety information.
- .2 Participating vessels shall maintain a listening watch on the designated VTS frequency.

## **5 Radiocommunications required for the system, frequencies on which reports should be transmitted and the information to be reported**

- .1 The working channels of the Chengshan Jiao VTS Centre are:  
  
Primary - Channels 8 or 9  
Secondary - Channel 65  
Calling frequency - Channel 16
- .2 The language used for reports in the system will be Chinese or English. Marine Communication Phrases in a prescribed format will be used in all direct-printing telegraphy and radiotelephony communications.

## **6 Rules and regulations in force in the areas of the system**

China has taken appropriate action to implement international conventions to which it is a party including, where appropriate, adopting domestic legislation and promulgating regulations through domestic law. Relevant laws in force include domestic legislation and regulations to implement the Convention on the International Regulations for Preventing Collisions at Sea, 1972, the International Convention for the Safety of Life at Sea, 1974, and the International Convention for the Prevention of Pollution from Ships, 1973/1978.

## **7 Shore-based facilities to support operation of the system**

- .1 Chengshan Jiao VTS Centre is comprised of radar, VHF communications, VHF-DF, information processing and display, information transmission, recording, replay, and hydro-meteorological sensors. Its functions are data collection and evaluation, provision of information, navigation assistance, and support to allied services.
- .2 Chengshan Jiao VTS Centre maintains a continuous 24 hour watch.

**8      Alternative communications if the communication facilities of the shore-based authority fails**

Chengshan Jiao VTS Centre has built in redundancies with multiple receivers on each channel. Alternative means of ship to shore communication are by HF(SSB), telex (facsimile), e-mail, or cellular.

**9      Measures to be taken if a ship fails to comply**

Appropriate measures will be taken to enforce compliance with the system, consistent with international law.

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**ANNEX 5****DRAFT ASSEMBLY RESOLUTION ON  
GUIDELINES FOR VOYAGE PLANNING**

THE ASSEMBLY,

RECALLING Article 15(j) of the Convention on the International Maritime Organization concerning the functions of the Assembly in relation to regulations and guidelines concerning maritime safety and the prevention and control of marine pollution from ships,

RECALLING ALSO section A-VIII/2, Part 2 - Voyage planning of the Seafarers' Training, Certification and Watchkeeping Code,

RECALLING FURTHER the essential requirements contained in the STCW and SOLAS Conventions concerning voyage planning, including those relating to officers and crew; shipborne equipment and safety management systems,

RECOGNIZING THE NEED to update the 1978 guidance on voyage planning issued as SN/Circ.92,

NOTING the request of the Assembly in resolution A.790(19) that the Maritime Safety Committee (MSC) consider the issue of voyage planning in conjunction with its review of the Code for the Safe Carriage of Irradiated Nuclear Fuel, Plutonium and High-level Radioactive Wastes in Flasks On Board Ships (INF Code) and MSC's decision that consideration of the issue of voyage planning should not be restricted to vessels carrying materials subject to the INF Code only but to all ships engaged on international voyages,

HAVING CONSIDERED, the recommendation made by the Sub-Committee on Safety of Navigation at its forty-fifth session:

1. ADOPTS the Guidelines for Voyage Planning set out in the Annex to the present resolution;
2. INVITES Governments to bring the annexed Guidelines to the attention of masters of vessels flying their flag, shipowners, ship operators, shipping companies, maritime pilots, training institutions and all other parties concerned for information and action as appropriate;
3. REQUESTS the Maritime Safety Committee to keep the said Guidelines under review and amend them as appropriate.

## ANNEX

### DRAFT GUIDELINES FOR VOYAGE PLANNING

#### 1 Objectives

1.1 The development of a plan for voyage or passage as well as the close and continuous monitoring of the vessel's progress and position during the execution of such a plan is of essential importance for the safety of life at sea, the safety and efficiency of navigation and the protection of the marine environment.

1.2 The need applies for voyage and passage planning to all vessels. There are several factors that may impede the safe navigation of all vessels and additional factors that may impede the navigation of large vessels or vessels carrying hazardous cargoes. These factors will need to be taken into account in the preparation of the plan and in the subsequent monitoring of the execution of the plan.

1.3 Voyage and passage planning includes appraisal, i.e. gathering all information relevant to the contemplated voyage or passage; detailed planning of the whole voyage or passage from berth to berth, including those areas necessitating the presence of a pilot; execution of the plan; and the monitoring of the progress of the vessel in the implementation of the plan. These components of voyage/passage planning are analysed below.

#### 2 Appraisal

2.1 All information relevant to the contemplated voyage or passage should be considered. The following items should be taken into account in voyage and passage planning:

- .1 the condition, state of the vessel and its stability and equipment; any operational limitations; its permissible draught at sea in fairways and in ports; and manoeuvring data including any restrictions;
- .2 any special characteristics of the cargo (especially hazardous cargoes) and its distribution, stowage and securing on board the vessel;
- .3 the provision of a competent and well-rested crew to undertake the voyage or passage;
- .4 requirements for up-to-date certificates and documents concerning the vessel, its equipment, crew, passengers or cargo;
- .5 appropriate scale, accurate and up-to-date charts to be used for the intended voyage or passage as well as any relevant permanent or temporary notices to mariners and existing radio navigational warnings;
- .6 accurate and up-to-date sailing directions, lists of lights, and lists of radio aids to navigation; and
- .7 any relevant up-to-date additional information, including:

- .1 mariners' routing guides and passage planning charts, published by competent authorities;
- .2 current and tidal atlases and tide tables;
- .3 climatological, hydrographical, and oceanographic data as well as other appropriate meteorological information;
- .4 availability of services for weather routing (such as that contained in Volume D of the World Meteorological Organization's Publication No. 9);
- .5 existing ships' routing and reporting systems, vessel traffic services, and marine environmental protection measures;
- .6 volume of traffic likely to be encountered throughout the voyage or passage;
- .7 if a pilot is to be used, information relating to pilotage and embarkation and disembarkation including the exchange of information between master and pilot;
- .8 available port information including information pertaining to the availability of shorebased emergency response arrangements and equipment; and
- .9 any additional items pertinent to the type of the vessel or its cargo, the particular areas through which the vessel will traverse; and the type of voyage or passage to be undertaken.

2.2 On the basis of the above information, an overall appraisal of the intended voyage or passage should be made. This appraisal should provide a clear indication of all areas of danger; those areas where it will be possible to navigate safely, including any existing routing or reporting systems and vessel traffic services; and any areas with marine environmental protection considerations.

### **3 Planning**

3.1 On the basis of the fullest possible appraisal, a detailed voyage or passage plan should be prepared and it should cover the entire voyage or passage from berth to berth, including those areas where the services of a pilot will be used.

3.2 The detailed voyage or passage plan should include the following factors:

- .1 the plotting of the intended route or track of the voyage or passage on appropriate scale charts: the true direction of the planned route or track should be indicated, as well as all areas of danger, existing ships' routing and reporting systems, vessel traffic services, and any areas with marine environmental protection considerations;
- .2 the main elements to achieve the safety of life at sea, the safety and efficiency of navigation, and the protection of the marine environment during the intended voyage or passage; such elements should include but not be limited to:
  - .1 safe speed having regard to the proximity of navigational hazards along the intended route or track, the manoeuvring characteristics of the vessel and its draught in relation to the available water depth;

- .2 necessary speed alterations en route, e.g., where there may be limitations because of night passage, tidal restrictions, or allowance for the increase of draught due to squat and heel effect when turning;
- .3 minimum clearance required under the keel in critical areas with restricted water depth;
- .4 positions where a change in machinery status is required;
- .5 course alteration points, taking into account the vessel's turning circle at the planned speed and any expected effect of tidal streams and currents;
- .6 the method and frequency of position fixing, including primary and secondary options, and the indication of areas where accuracy of position fixing is critical and where maximum reliability must be obtained;
- .7 use of ships' routeing and reporting systems and vessel traffic services;
- .8 considerations relating to the protection of the marine environment; and
- .9 contingency plans for alternative action to place the vessel in deep water or proceed to a port of refuge or safe anchorage in the event of any emergency necessitating abandonment of the plan, taking into account existing shorebased emergency response arrangements and equipment and the nature of cargo and the emergency itself.

3.3 The details of the voyage or passage plan should be clearly marked and recorded, as appropriate, on charts and in a voyage plan notebook, or a computer disk.

3.4 Each voyage or passage plan as well as the details of the plan should be approved by the ships' master prior to the commencement of the voyage or passage.

#### **4 Execution**

4.1 Having finalized the voyage or passage plan, as soon as estimated times of arrival can be made with reasonable accuracy, the voyage or passage should be executed in accordance with the plan or any changes made thereto.

4.2 The factors that should be taken into account include:

- .1 the reliability and condition of the vessel's navigational equipment;
- .2 estimated times of arrival at critical points for tide heights and flow;
- .3 meteorological conditions, particularly in areas known to be affected by frequent periods of low visibility and weather routeing;
- .4 day-time versus night-time passing of danger points, and any effect this may have on position fixing accuracy; and

.5 traffic conditions, especially at navigational focal points.

4.3 It is important for the master to consider whether any particular circumstance, such as the forecast of restricted visibility in an area where position fixing by visual means at a critical point is an essential feature of the voyage or passage plan, introduces an unacceptable hazard to the safe conduct of the passage; and thus whether that section of the passage should be attempted under the conditions prevailing or likely to prevail. The master should also consider at which specific points of the voyage or passage there may be a need to utilize additional deck or engine room personnel.

## **5 Monitoring**

5.1 The plan should be available at all times on the bridge to allow immediate access and reference to the details of the plan.

5.2 The progress of the vessel in accordance with the voyage and passage plan should be closely and continuously monitored. Any changes made to the plan should be made consistent with these Guidelines and clearly marked and recorded.

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**ANNEX 6**

**DRAFT RESOLUTION MSC.[...](72)**

**ON ADOPTION OF AMENDMENTS TO THE INTERNATIONAL  
CONVENTION FOR THE SAFETY OF LIFE AT SEA, 1974**

(Please see NAV 45/14/Add.1)

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**ANNEX 7\*****PROPOSED AMENDMENTS TO SOLAS 74 AND SOLAS PROTOCOL 88  
CONCERNING RECORDS OF EQUIPMENT**

1 At its forty-fifth session, the Sub-Committee prepared the attached proposal for amendments to SOLAS 74 and SOLAS Protocol 88 concerning records of equipment (Forms P, E and C).

2 The new table to be inserted is common to all amendments to Forms P, E and C with respect to SOLAS 74 and SOLAS Protocol 88.

3 The amendments to SOLAS 74 will be adopted by the Expanded MSC by Contracting Governments to SOLAS 74. The amendments to SOLAS Protocol 88 will be adopted by the Expanded MSC by Parties to SOLAS Protocol 88.

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\* This annex contains proposed consequential amendments to SOLAS which are outside of chapter V.

## ANNEX

### **Proposed Amendments to SOLAS 74**

#### Appendix 1 - Record of equipment

1 Record of Equipment for the Passenger Ship Safety Certificate (Form P)

The existing text of sections 5 and 6 is deleted and the following new section 5 is inserted:

2 Record of Equipment for the Cargo Ship Safety Equipment Certificate (Form E)

The existing text of section 3 is deleted and the following new section 3 is inserted:

### **Proposed Amendments to SOLAS Protocol 88**

#### APPENDIX

1 Record of Equipment for the Passenger Ship Safety Certificate (Form P)

The existing text of sections 5 and 6 is deleted and the following new section 5 is inserted:

2 Record of Equipment for the Cargo Ship Safety Equipment Certificate (Form E)

The existing text of section 3 is deleted and the following new section 3 is inserted:

3 Record of Equipment for the Cargo Ship Safety Certificate (Form C)

The existing text of sections 5 and 6 is deleted and the following new section 5 is inserted:

# **Details of navigational systems and equipment**

Item		Actual provision
1	Magnetic compass	.....
2	Pelorus or compass bearing device	.....
3	Means of correcting heading and bearings	.....
4	Nautical charts and nautical publications	.....
5	Means to back up the functional requirements of ECDIS	.....
6	Receiver for a global navigation satellite system or a terrestrial radionavigation system	.....
7	Radar reflector	.....
8	Sound reception system	.....
9	Echo sounding device	.....
10	Telephone to emergency steering position	.....
11	Spare magnetic compass	.....
12	Signal lamp	.....
13	9 GHz radar and 3 GHz radar if provided	.....
14	Electronic plotting aid	.....
15	Speed and distance measuring log	.....
16	Automatic identification system (AIS)	.....
17	Properly adjusted transmitting magnetic heading device (TMHD)	.....
18	Gyro compass	.....
19	Gyro compass heading repeater	.....
20	Gyro compass bearing repeater	.....
21	Rudder, propeller, thrust, pitch and operational mode indicators	.....
22	Automatic tracking aid	.....
23	Second radar	.....
24	Automatic radar plotting aid	.....
25	Heading and Track control system	.....
26	Rate of turn indicator	.....
27	Speed and distance measuring log using doppler	.....
28	Voyage data recorder (VDR)	.....

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**ANNEX 8**

**DRAFT SN CIRCULAR ON GUIDANCE ON CHART DATUMS AND THE  
ACCURACY OF POSITIONS ON CHARTS**

1 The Maritime Safety Committee, at its seventy-second session (17 to 26 May 2000), approved guidance on chart datums and the accuracy of positions on charts, given at the annex.

2 Member Governments are invited to bring this guidance to the attention of all concerned for information and action, as appropriate.

## ANNEX

### GUIDANCE ON CHART DATUMS AND THE ACCURACY OF POSITIONS ON CHARTS

1 Many different definitions of a horizontal datum (also known as geodetic datum) exist. However, a practical working definition in use is:

*“A horizontal datum is a reference system for specifying positions on the Earth’s surface. Each datum is associated with a particular reference spheroid that can be different in size, orientation and relative position from the spheroids associated with other horizontal datums. Positions referred to different datums can differ by several hundred metres.”*

2 The practical result is that a given geographical position, not associated with a specific datum, could refer to different physical objects. In other words, a physical object can have as many geographical positions as there are datums. For example, South Foreland Lighthouse, United Kingdom, has the following positions:

GEOGRAPHICAL POSITION	HORIZONTAL DATUM
51°08'.39 N 01°22'.37 E	referred to OSGB(36) Datum (the local datum for the United Kingdom)
51°08'.47 N 01°22'.35 E	referred to European (1950) Datum (the continental datum)
51°08'.42 N 01°22'.27 E	referred to World Geodetic System 1984 (WGS84) Datum (the world-wide datum used by Global Positioning System (GPS))

3 Most charts are not yet referred to WGS84 Datum. This means that, in those cases, positions obtained from satellite navigation receivers will not be directly compatible with the chart and **must** not be used without adjustment. Hydrographic offices are attempting to refer as many new charts as possible to WGS84, but there remain many areas of the world where information does not exist to enable the transformation to be performed.

4 When known, the horizontal datum of the chart is usually named in the chart title albeit, on its own, this information is of limited benefit to the mariner. Since 1982 many hydrographic offices have been adding “Satellite-Derived Positions” notes (usually situated close to the title) when charts have been revised. This note provides a latitude and longitude adjustment to be applied to positions obtained directly from satellite navigation systems (such as GPS) to make them compatible with the horizontal datum of the chart.



5 The following provides a worked example:

Satellite-Derived Position (WGS-84 Datum)	64°22'.00 N 021°30'.00 W
latitude/longitude adjustments	<u>0'.07 S      0'.24 E</u>
Adjusted position (compatible with chart datum)	64°21'.93 N 021°29'.76 W

In this example, the shift equates to approximately 230 metres which can be plotted at scales larger than 1:1,000,000.

6 Where known, these adjustments are an average value for the whole area covered by the chart and are quoted to 2 decimal places of a minute in both latitude and longitude, so that the maximum uncertainty is about 10 metres in both latitude and longitude (0.005' and 0.014' will both be rounded to 0.01'). This uncertainty can be plotted at scales larger than 1:30,000 (where it is represented by 0.3 mm on the chart).

7 Inevitably, cases exist where overlapping charts show different latitude or longitude shift values. For example, one chart might show 0.06' and its neighbour 0.07'; for each individual chart the value will be an average, but in the area common to both charts the value will range from 0.064' to 0.066'.

8 In the cases where an adjustment cannot be determined because of the lack of knowledge about the relationship between WGS84 Datum and the datum of the chart, the hydrographic office may add a note to that effect warning that adjustments “may be significant to navigation”. The largest difference between satellite navigation derived and charted position reported so far is 7 miles in the Pacific Ocean, but even larger undiscovered differences may exist. Where charts do not contain any note about position adjustment it **must** not be assumed that no adjustment is required.

9 Most manufacturers of GPS receivers are now incorporating datum transformations into their software which enable users to (apparently) receive positions referred to datums other than WGS84 Datum. Unfortunately, many cases exist where a single transformation will not be accurate for a large regional datum. For example, the relationship between WGS84 Datum and European Datum (1950) is very different between the north and south of the region, despite the datum name being the same. Therefore, the position transformed to European Datum (1950) in the receiver by means of a Europe -wide average may differ from the WGS84 Datum position output by the receiver, amended to European Datum (1950) by the shift note on an individual chart. In the light of the 100 metre accuracy of the Standard Positioning Service of GPS this may not be significant, but it is an additional source of error and is of major significance if differential GPS (DGPS) is being used for navigation.

10 It must not be assumed that all charts in a region are referred to the regional datum. For example, although most metric charts of mainland European waters are referred to European Datum (1950), many charts are also referred to local datums. Additionally, as there are no international standards defining the conversion parameters between different horizontal datums; the parameters used by the GPS devices may be different. The hydrographic offices use the best adopted parameters, so mariners are advised to keep their GPS receiver referred to WGS84 Datum and apply the datum adjustment note from the chart.

11 Apart from the differences in positions between different horizontal datums, two other aspects affect charted positional accuracy. These aspects are:

- the accuracy to which features are surveyed (paragraphs 12 to 16; and
- the accuracy with which they are compiled on to a chart (paragraphs 17 to 21).

## **Surveying**

12 Hydrographic surveys are generally conducted using the best position-fixing technology available at the time. This was limited to accurate visual fixing until the Second World War, but used terrestrial based electronic position fixing (such as Decca, Hifix, Hyperfix and Trisponder) until the 1980s. DGPS is the current standard for most hydrographic surveys.

13 Generally, position fixing for surveying was more accurate than that for navigation in the first two categories, but DGPS is being made more widely available for use by all mariners with the appropriate equipment. The result is that current navigation with DGPS is, commonly, more accurate than position-fixing used for surveys conducted before 1980. The consequence is that, although a modern vessel may know its position to an accuracy of better than 10 metres, the positions of objects on the seabed may only be known to an accuracy of 20 metres or much worse, depending on the age of the latest survey and/or its distance from the coast.

14 Furthermore it is only since the 1970s that surveying systems have had the computer processing capacity to enable the observations to be analysed to enable an estimate of the accuracy of position fixing to be generated. The result is that, although the current accuracy standard of position fixing surveys can be stated (see paragraph 15 below), it is impossible to provide anything other than general estimates for older surveys.

15 The current accuracy standard for positioning is 13 metres for most surveys with the standard of  $\pm 5$  metres (both 95% of the time) for certain special purpose surveys. It can be confidently stated that the former value is often significantly improved upon. Further improvements will undoubtedly be made as a result of technological developments, but at present there has to be a balance between the cost of a survey and the quality and quantity of the results achieved.

16 In summary, although the positions of maritime objects derived from modern surveys will be accurate to better than 10 metres, this cannot be used as a general statement about all such objects.

## **Chart compilation**

17 Most paper charts and their derived digital versions are assembled from a variety of sources such as maps, surveys, photogrammetric plots etc. The intention is to provide the mariner with the best available information for all parts of that chart and the usual procedure is to start with the most accurate sources, but it is often impossible to complete the whole chart without resource to older, less accurate, sources. When sources are referred to different datums, transformations have to be calculated and applied to make the sources compatible. The intention is for such transformations to have an accuracy of 0.3 mm at chart scale, this being the effective limit of manual cartography, but, depending on the information available, this may not always be possible.

18 When the positions of objects critical to navigation are accurately known, the intention is that they are located on a chart to an accuracy of 0.3 mm. The obvious consequence is that accuracy varies with chart scale:

0.3 mm at a scale of 1:10,000 is 3 metres

0.3 mm at a scale of 1:50,000 is 15 metres

0.3 mm at a scale of 1:150,000 is 45 metres

19 The situation will change as chart data becomes available digitally, but much of the early digital data will be derived from these paper charts and the limitations will remain. Furthermore, a pixel on a computer display screen is approximately 0.2 mm square, roughly equivalent to the accuracy available on the paper chart.

20 The situation for mariners is improving with recent surveys referred directly to WGS84 Datum, increasing numbers of charts referred to WGS84 Datum (or to North American Datum 1983 which is the same to all practical purposes) and increased international co-operation in the exchange of information. Unfortunately, it will be many years before all areas are re-surveyed and all charts revised.

21 Until that happens, mariners should remain alert to danger. A satellite navigation receiver may output a position to a precision of three decimal places of a minute, but that does not mean that all its positions are accurate to 2 metres or that the resulting position is compatible with the positions of objects shown on modern charts (paper or digital) which may have been established 100 years ago and not surveyed since. The chart title notes and cautions and the source Diagram, which shows the ages of surveys must always be consulted for indications of limitations.

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**ANNEX 9****DRAFT RESOLUTION MSC ... (72)  
(adopted on ... May 2000)****PERFORMANCE STANDARDS FOR NIGHT VISION EQUIPMENT FOR  
HIGH SPEED CRAFT (HSC)**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO resolution A.825(19), by which the Assembly resolved that the functions of adopting performance standards for radio and navigational equipment, as well as amendments thereto, shall be performed by the Maritime Safety Committee on behalf of the Organization,

RECALLING FURTHER the provisions of Chapter X of the International Convention for the Safety of Life at Sea, 1974, as amended, by which the International Code of Safety for High Speed Craft (HSC Code) was made mandatory since 1 January 1996, under which the fitting of night vision equipment, as part of the navigational equipment on board HSC, is required,

RECOGNIZING that the use of night vision equipment on board HSC will improve the ship's safety when navigating at night and that the navigational information provided by this equipment constitutes a useful addition to that provided by radar equipment,

BEARING IN MIND the obligation for type approval of night vision equipment according to the HSC Code,

HAVING CONSIDERED the recommendation made by the Sub-Committee on Safety of Navigation at its forty-fifth session,

1. ADOPTS the Recommendation on Performance Standards for Night Vision Equipment for HSC, set out in the annex to the present resolution;
2. RECOMMENDS Governments to ensure that night vision equipment installed in compliance with the HSC Code on or after [1 July 2002] conform to performance standards not inferior to those specified in the annex to the present resolution.

## ANNEX

### RECOMMENDATION ON PERFORMANCE STANDARDS FOR NIGHT VISION EQUIPMENT FOR HIGH SPEED CRAFT (HSC)

#### 1 OBJECTIVES OF NIGHT VISION EQUIPMENT FOR HIGH SPEED CRAFT

Night vision equipment facilitates the detection at night of hazards to navigation above the water surface, thus providing essential information to the navigator for collision avoidance and safe navigation of High Speed Craft. Typical hazards to HSC include, for example, small unlit boats, floating logs, oil drums, containers, buoys, ice, hazardous waves and whales.

#### 2 APPLICATION

These performance standards should be applied to night vision equipment, which is required for HSC pursuant to Chapter 13, of the International Code of Safety for High Speed Craft (HSC Code).

#### 3 RELATED REQUIREMENTS INVOLVED

The following standards should be additionally applied, as far as applicable:

- Resolution A.694 (17) on General Requirements for Shipborne Radio Equipment forming Part of the Global Maritime Distress and Safety System (GMDSS) and for Electronic Navigational Aids;
- IEC Publication 447 "Man-Machine Interface (MMI) - Actuating Principles";
- IEC Publication 60945 "Maritime Navigation and Radiocommunication Equipment and Systems -General Requirements, Methods of Testing and Required Test Results";
- IEC Publication 61162 "Maritime Navigation and Radiocommunication Equipment and Systems - Digital Interfaces"; and
- ISO/IEC Publication 9126 "Information Technology, Software Product Evaluation, Quality Characteristics and Guidelines for their Use"

#### 4 DEFINITIONS

**"Night vision equipment"** means any technical means enabling the position and aspect of objects above the water surface relative to one's own craft to be detected at night.

**"High-speed craft"** means any craft to which the definition in chapter 1 of the HSC Code applies.

**"Standard test target"** means a target that simulates the real hazard of a surface object that can be found at sea such as, small unlit boats, floating logs, oil drums, containers, buoys, ice, hazardous waves and whales.

## 5 FUNCTIONAL REQUIREMENTS

### 5.1 *Required functions and their availability*

At night, night vision equipment should be capable of detecting objects above the water surface within a certain distance from one's own craft, and of displaying the information pictorially in real time, to assist in collision avoidance and safe navigation.

### 5.2 *Reliability, accuracy and discrimination*

#### 5.2.1 Continuous operation

Night vision equipment on board HSC, while navigating at sea, should be capable of continuous operation from after sunset until before sunrise. After the equipment has been switched on it should be operational in less than 15 min.

#### 5.2.2 Standard test target

The standard test target should be a black metal target of such a size that when at least 50% is immersed, 1.5 m long x 0.5 m high remains above the water at right angles to the desired direction of detection. Administrations may use other smaller targets to reflect local conditions.

#### 5.2.3 Detection range

With the required field of view, the equipment should detect the standard test target at a distance of not less than 600 m with a minimum probability of 90%, when the target has been immersed in the sea for at least 24 hours under mean starlight conditions without clouds and without moon.

#### 5.2.4 Field of view

The required horizontal field of view should be at least 20°, 10° on either side of the bow. The vertical field of view should be at least 12° and should be sufficient to enable the equipment to fulfil the performance requirements of this standard as well as being able to see the horizon.

Optionally other fields of view may be provided. Their selection should be made with a non locking switch, which returns to the required field of view when released.

#### 5.2.5 Pan and tilt ranges of the fields of view

The axis of the field of view of the equipment should be capable of being moved at least 20° horizontally to either side.

The elevation axis of the field of view should be capable of being adjusted by at least 10° to compensate for the trim of the craft.

#### 5.2.6 Speeds of panning of the fields of view

By activation of a single control element, the axis of the field of view should be capable of being returned automatically to the ahead position at a minimum angular speed of 30°/s. The system should be capable of panning at a minimum angular speed of 30°/s

#### 5.2.7 Heading indication

When inside the field of view, the heading marker of the craft should be indicated on the display with an error not greater than  $\pm 1^\circ$ .

When outside the field of view, a visual indication of relative bearing with an error of not greater than  $\pm 1^\circ$  should be provided.

#### 5.2.8 Roll or pitch

The performance of the night vision equipment should be such that when the craft is rolling and/or pitching up to  $\pm 10^\circ$ , the performance requirements in this standard should be complied with.

#### 5.2.9 Clear view

Arrangement should be provided to ensure efficient cleaning of the sensor head/lens from the operating position. Administrations may require some additional facilities such as de-icing.

#### 5.2.10 Optical interference

Measures should be taken, to ensure that objects commonly encountered at sea and in ports should not be displayed less clearly on the monitor of the night vision equipment because of dazzle effects, reflection, blooming, or any other effects due to the surroundings.

### 5.3 *Malfunctions, alarms and indications*

The night vision equipment should include a visual indication of any failure.

### 5.4 *Software requirements*

5.4.1 The operational characteristics of the software should meet the following requirements, in particular:

- .1 self-description of the functions implemented by means of software;
- .2 display of user interface status; and
- .3 software protection against unauthorized changes.

5.4.2 If certain functions of night vision equipment are implemented using software, such software should meet the applicable requirements of international standards\*.

## 6 **ERGONOMIC REQUIREMENTS**

### 6.1 *General*

The night vision equipment should be designed in accordance with sound ergonomic principles.

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\* Refer to IEC Publication 60945



## 6.2 *Operational controls*

- 6.2.1 The number of operational controls should be limited to the minimum required for operation.
- 6.2.2 Double functions of operational controls should be avoided.
- 6.2.3 The functions of the individual operational controls should be clearly labelled.
- 6.2.4 The functions of night vision equipment should be activated directly through the operational controls; menu-driven controls should be avoided.
- 6.2.5 The operational controls should be clearly identifiable in the dark. If illumination is used, the brightness should be adjustable.
- 6.2.6 The operational controls of night vision equipment should meet the requirements of resolution A.694(17), as well as applicable requirements of international standards.\*

## 6.3 *Presentation of information*

- 6.3.1 The status of operation of the equipment should be continuously displayed.
- 6.3.2 The display should be non-dazzling and non-flickering. The display should be capable of displaying an image of at least 180 mm diagonal.
- 6.3.3 The selected field of view, if more than one is provided (see paragraph 5.2.4), should be continuously indicated at the operating position.

# 7 **DESIGN AND INSTALLATION**

## 7.1 *Durability and resistance to environmental conditions*

Night vision equipment should withstand the environmental conditions specified in resolution A.694(17) and in the applicable international standards.\*

## 7.2 *Interference*

With respect to electrical and electromagnetic interference, night vision equipment should meet the requirements of resolution A.694(17) and the applicable international standards.\*\*

## 7.3 *Power supply*

The power supply of night vision equipment should meet the requirements of resolution A.694(17) and the applicable international standards.\*\*

## 7.4 *Installation*

- 7.4.1 Full installation instructions to meet the requirements of paragraphs 7.4.2 to 7.4.6 should be included in the documentation (see section 12).

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\* Refer to IEC Publication 447

\*\* Refer to IEC Publication 60945

7.4.2 The controls of night vision equipment should be installed in the workstation for navigating and manoeuvring, within easy reach of the navigator.

7.4.3 The observation distance from a dedicated display should not exceed 2.3 times the image diagonal.

7.4.4 The sensor of the night vision equipment should be installed in such a way that:

- .1 the horizontal panning area required in paragraph 5.2.5 is free of blind sectors up to 30° on either side; and
- .2 in the required field of view, in the direction right ahead, visibility of the water surface for the vertically tilted sensor is not reduced by more than two craft's lengths by the blind angle of own craft.

7.4.5 Night vision equipment should be installed in such a way that its operation and detection functions are not impaired by head wind and/or true wind up to 100 knots and roll and/or pitch angles up to  $\pm 10^\circ$ .

7.4.6 Its performance should not be impaired by vibration occurring during normal craft's operation.

## 7.5 *Maintenance*

With respect to maintenance, night vision equipment should meet the requirements of resolution A.694(17) and the applicable international standards\*. Where the manufacturer requires maintenance at specific periods, an operating hours meter should be provided.

## 8 **INTERFACING**

Interfaces with other radio and navigation equipment should meet applicable international marine interface standards\*\*. A recognized international video output standard for image recording should be provided.

## 9 **BACK-UP AND FALL-BACK ARRANGEMENTS**

In the event of failure of the pan-tilt device, the sensor should be capable of being fixed in the ahead position while underway.

## 10 **SAFETY PRECAUTIONS**

The safety features of night vision equipment should meet the requirements of resolution A.694(17) and the applicable international standards.\*

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\* Refer to IEC Publication 60945

\*\* Refer to IEC Publication 61162

## **11 MARKING AND IDENTIFICATION**

Night vision equipment should be marked in accordance with the requirements of resolution A.694(17) and the applicable international standards.\*

## **12 DOCUMENTATION**

Night vision equipment should be delivered complete with its technical documentation. Such documentation should include the following information, if applicable:

General information:

- manufacturer;
- type designation;
- general description of equipment; and
- ancillary equipment and description;

Instructions for installation:

- general installation instructions;
- power supply (voltage, power consumption, frequency) and earthing information.

Operation of equipment:

- description of functions, controls, display;
- description of start-up procedures;
- calibration of equipment and error messages;
- testing capabilities of equipment;
- description of software used and interfaces.

Troubleshooting; maintenance and service:

- special tools required, maintenance material and spare parts (e.g. fuses, spare bulbs);
- equipment care and maintenance on board HSC;
- available services.

Documentation for night vision equipment should also meet the requirements of resolution A.694(17) and the applicable international standards.\*

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\* Refer to IEC Publication 60945



**ANNEX 10****DRAFT RESOLUTION MSC...(72)****(adopted on ..... May 2000)****PERFORMANCE STANDARDS FOR DAYLIGHT SIGNALLING LAMPS**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of Committee,

RECALLING ALSO resolution A.825(19), by which the Assembly resolved that the functions of adopting performance standards for radio and navigational equipment, as well as amendments thereto, shall be performed by the Maritime Safety Committee on behalf of the Organization,

RECALLING FURTHER the provisions of chapter V of the International Convention for the Safety of Life at Sea, 1974 (SOLAS), as amended, chapter 13 of the International Code of Safety for High Speed Craft (HSC Code), in force, and chapter X of the Torremolinos Protocol of 1993 relating to the Torremolinos International Convention for the Safety of Fishing Vessels, 1977,

RECOGNIZING that, for safety reasons, daylight signalling lamps are necessary on board for signalling in different situations, e.g. according to COLREGs, the IAMSAR Manual and the International Code of Signals,

BEARING IN MIND the obligation for type approval of daylight signalling lamps according to the HSC Code, the 1993 Torremolinos Protocol and SOLAS, to ensure operational reliability and suitability and to ensure a common level of safety,

HAVING CONSIDERED the recommendation made by the Sub-Committee on Safety of Navigation at its forty-fifth session,

1. ADOPTS the Recommendation on Performance Standards for Daylight Signalling Lamps, set out in the Annex to the present resolution;
2. RECOMMENDS Governments to ensure that daylight signalling lamps fitted in compliance with relevant international instruments in force on or after [1 July 2002] conform to performance standards not inferior to those specified in the annex to the present resolution.

## ANNEX

### RECOMMENDATION ON PERFORMANCE STANDARDS FOR DAYLIGHT SIGNALLING LAMPS

#### 1 OBJECTIVES OF DAYLIGHT SIGNALLING LAMPS FOR CRAFTS

Daylight signalling lamps should be suitable for conveying information between ships, or between ship and shore, by means of light signals, both by day and by night.

#### 2 APPLICATION

These performance standards should be applied to daylight signalling lamps, which are required for certain ships pursuant to chapter V of the International Convention for the Safety of Life at Sea, 1974, as amended, and chapter 8 of the International Code of Safety for High Speed Craft, in force.

#### 3 RELATED REQUIREMENTS INVOLVED

The following standards should be additionally applied, as far as applicable:

- Resolution A.694(17) on General Requirements for Shipborne Radio Equipment forming Part of the Global Maritime Distress and Safety System (GMDSS) and for Electronic Navigational Aids;
- Resolution A.813(19) on General Requirements for Electromagnetic Compatibility (EMC) for all Electrical and Electronic Ship's Equipment;
- IEC Publication 60945 "Maritime Navigation and Radiocommunication Equipment and Systems-General Requirements, Methods of Testing and Required Test Results"; and
- CIE Publication No. 2.2 "Colors of Light Signals".

#### 4 DEFINITIONS

**"Daylight signalling lamps"** means lamps suitable for transmitting white light signals to an observer by focused light beams which may be fixed or portable.

**"Switch-on time"** means the period of time required for reaching 95% of the required luminous intensity after the daylight signalling lamp has been switched on.

**"Switch-off time"** means the period of time required for luminous intensity to decrease to 5% of the required luminous intensity after the daylight signalling lamp has been switched off.

## 5 FUNCTIONAL REQUIREMENTS

### 5.1 *Required functions and their availability*

Daylight signalling lamps should be suitable for giving light signals, which can be clearly distinguished visually as separate signals by an observer.

### 5.2 *Reliability, accuracy and discrimination*

5.2.1 By day and with an atmospheric transmission of 0.8, the visibility of light signals emitted by daylight signalling lamps should be at least 2 nautical miles, equalling a required luminous intensity of 60,000 cd.

5.2.2 The axial luminous intensity of daylight signalling lamps should reach at least 90% of the maximum luminous intensity.

5.2.3 The luminous intensity of daylight signalling lamps should have its maximum in the centre of the luminous intensity distribution. It should decrease evenly from the centre of luminous intensity distribution.

5.2.4 The half angle of divergence  $a_h$  should not exceed  $9^\circ$ , the tenth angle of divergence  $a_z$  should not exceed  $14^\circ$ .

5.2.5 The chromaticity of the white signal light should lie within the following corner co-ordinates of the diagram specified by the International Commission on Illumination (CIE) in CIE Publication No. 2.2:

x	0.525	0.525	0.452	0.310	0.310	0.443
y	0.382	0.440	0.440	0.348	0.283	0.382

5.2.6 The effective light emission sectors of daylight signalling lamps should be circular. The sum of switch-on and switch-off times should not exceed 500 ms.

### 5.3 *Malfunctions, warnings, alarms and indications*

Daylight signalling lamps should be provided with an indication of their operational status.

## 6 OPERATIONAL REQUIREMENTS

### 6.1 *Ergonomy*

Daylight signalling lamps and any battery required for operation should be designed in such a way that safe handling in the intended application is ensured. The daylight signalling lamp should be capable of being operated by personnel wearing gloves.

## 6.2 *Operational controls*

The operational controls of daylight signalling lamps should meet the requirements of resolution A.694(17) and the applicable international standards.\*

## 7 **DESIGN AND INSTALLATION**

### 7.1 *Durability and resistance to environmental conditions*

7.1.1 The illuminant should be safely fitted in the daylight signalling lamp; use of screwed sockets should be avoided.

7.1.2 Daylight signalling lamps should be designed in such a way that the illuminant can be easily replaced also in the dark.

7.1.3 The sighting mechanism should be mounted in a fixed attitude, parallel to the optical axis.

7.1.4 All parts of daylight signalling lamps should be made of anti-magnetic material.

7.1.5 Daylight signalling lamps should be so constructed that the accumulation of condensed water is avoided.

7.1.6 The materials used should withstand heat generation during operation.

7.1.7 With respect to durability and resistance to environmental conditions, daylight signalling lamps should meet the requirements specified in resolution A.694(17) and in the applicable international standards.\*

### 7.2 *Interference*

With respect to electrical and electromagnetic interference daylight signalling lamps should meet the requirements of resolutions A.694(17) and A.813(19) and the applicable international standards.\*

### 7.3 *Power supply*

7.3.1 Daylight signalling lamps should not be solely dependent upon the ship's main or emergency sources of electrical energy.

7.3.2 Daylight signalling lamps should be provided with a portable battery with a complete weight of not more than 7.5 kg.

7.3.3 The portable battery should have sufficient capacity to operate the daylight signalling lamp for a period of not less than 2 h.

7.3.4 The power supply of daylight signalling lamps should meet the requirements of resolution A.694(17) and the applicable international standards.\*

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\* Refer to IEC Publication 60945



#### 7.4 *Maintenance*

With respect to maintenance, daylight signalling lamps should meet the requirements of resolution A.694(17) and the applicable international standards.\*

### **8 BACK-UP AND FALL-BACK ARRANGEMENTS**

Each daylight signalling lamp should be provided with at least three spare illuminants complying with the type-tested illuminant.

### **9 SAFETY PRECAUTIONS**

The outer parts of daylight signalling lamps should not reach temperatures during operation which restrict their manual use. Additionally, daylight signalling lamps should meet the safety requirements of resolution A.694(17) and the applicable international standards.\*

### **10 MARKING AND IDENTIFICATION**

10.1 Daylight signalling lamps should be marked clearly and durably with the following data:

- .1 identification of the manufacturer;
- .2 equipment type number or model identification under which it was type tested; and
- .3 serial number of the unit.

10.2 On the illuminant, the manufacturer's label and the voltage and power consumption should be marked clearly and durably.

10.3 Daylight signalling lamps should further be marked to meet the requirements of resolution A.694(17) and the applicable international standards.\*

### **11 DOCUMENTATION**

Daylight signalling lamps should be delivered complete with their technical documentation. Such documentation should include the following information, if applicable:

General information:

- manufacturer;
- type designation;
- general description of the equipment; and
- ancillary equipment and description.

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\* Refer to IEC Publication 60945

Instructions for operation of equipment:

- general information on mains connection;
- power supply data (voltage, power consumption);
- description of start-up procedures; and
- description of ways of checking the parallel adjustment of sighting mechanism and luminous intensity axis.

Troubleshooting; maintenance and service :

- description of illuminant replacement;
- description of adjustment of sighting mechanism;
- special tools required, maintenance material and spare parts (e.g. spare illuminants, fuses, mirrors and covers);
- equipment care and maintenance on board; and
- available services.

Documentation for daylight signalling lamps should meet the requirements of resolution A.694(17) and the applicable international standards.\*

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\* Refer to IEC Publication 60945

**ANNEX 11****DRAFT RESOLUTION MSC ... (72)  
(adopted on ... May 2000)****ADOPTION OF AMENDED PERFORMANCE STANDARDS FOR DEVICES  
TO MEASURE AND INDICATE SPEED AND DISTANCE**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO resolution A.825(19), by which the Assembly resolved that the functions of adopting performance standards for radio and navigational equipment, as well as amendments thereto, shall be performed by the Maritime Safety Committee on behalf of the Organization,

HAVING CONSIDERED amendments to existing performance standards for devices to indicate speed and distance adopted by the Assembly prepared by the forty-fifth session of the Sub-Committee on Safety of Navigation,

1. ADOPTS the recommended amendments to resolution A.824(19) – Recommendation on Performance Standards for Devices to Indicate Speed and Distance, set out in the Annex to the present resolution;
2. RECOMMENDS Member Governments to ensure that:
  - (a) devices to measure and indicate speed and distance installed on or after [1 July 2002] conform to performance standards not inferior to those set out in the Annex to the present resolution;
  - (b) devices to indicate speed and distance installed on and after 1 January 1997 but before [1 July 2002] conform at least to the performance standards set out in resolution A.824(19).

## ANNEX

### **AMENDMENTS TO RESOLUTION A.824(19) ON PERFORMANCE STANDARDS FOR DEVICES TO INDICATE SPEED AND DISTANCE**

Replace the Annex by:

## “ANNEX

### **RECOMMENDATION ON PERFORMANCE STANDARDS FOR DEVICES TO MEASURE AND INDICATE SPEED AND DISTANCE**

## **1 INTRODUCTION**

1.1 Devices to measure and indicate speed and distance are intended for general navigational and ship manoeuvring use. The minimum requirement is to provide information on the distance run and the forward speed of the ship through the water or over the ground. Additional information on ship's motions other than in the forward axis may be provided. The equipment should comply fully with its performance standard at forward speeds up to the maximum speed of the ship. Devices measuring speed and distance through the water should meet the performance standard in water of depth greater than 3 m beneath the keel. Devices measuring speed and distance over the ground should meet the performance standard in water of depth greater than 2 m beneath the keel.

1.2 Radar plotting aids/track control equipment require a device capable of providing speed through the water in the fore and aft direction.

1.3 In addition to the general requirements in resolution A.694(17), devices to measure and indicate speed and distance should comply with the following minimum performance requirements.

## **2 METHODS OF PRESENTATION**

2.1 Speed information may be presented in either analogue or digital form. Where a digital display is used, its incremental steps should not exceed 0.1 knots. Analogue displays should be graduated at least every 0.5 knots and be marked with figures at least every 5 knots. If the display can present the speed of the ship in other than the forward direction, the direction of movement should be indicated unambiguously.

2.2 Distance run information should be presented in digital form. The display should cover the range from 0 to not less than 9999.9 nautical miles and the incremental steps should not exceed 0.1 nautical miles. Where practicable, means should be provided for resetting a readout to zero.

2.3 The display should be easily readable by day and by night.

2.4 Means should be provided for transmitting measured speed and distance run information to other equipment fitted on board. In this regard:

- .1 the information on all speed and distance parameters, including direction should be transmitted in accordance with the relevant international marine interface standards\*;  
and
- .2 additionally, when the equipment is used for measuring forward speed, then the information may be transmitted using closing contacts and, if so, this should be in the form of one contact closure each 0.005 nautical miles run.

2.5 If equipment is capable of being operated in either the "speed through the water" or "speed over the ground" mode, mode selection and mode indication should be provided.

2.6 If the equipment has provision for indicating speeds other than on a single fore and aft direction, then both the forward and athwart speeds should be provided either through the water or over the ground. Resultant speed and direction information may be provided as a display selectable option. All such information should clearly indicate the direction, mode and validity status of the displayed information.

### **3 ACCURACY OF MEASUREMENT**

3.1 Errors in the measured and indicated speed, when the ship is operating free from shallow water effect and from the effects of wind, sea bottom type, current and tide, should not exceed the following:

- .1 for a digital display - 2% of the speed of the ship, or 0.2 knots, whichever is greater;
- .2 for an analogue display – 2.5% of the speed of the ship, or 0.25 knots, whichever is greater; and
- .3 for output data transmission – 2% of the speed of the ship, or 0.2 knots, whichever is greater.

3.2 Errors in the indicated distance run, when the ship is operating free from shallow water effect and from the effects of wind, sea bottom type, current and tide, should not exceed 2% of the distance run by the ship in 1 h or 0.2 nautical miles in each hour, whichever is greater.

3.3 If the accuracy of devices to indicate speed and distance run can be affected in use by certain conditions (e.g. sea state and its effects, water temperature, salinity, sound velocity in water, depth of water under the keel, heel and trim of ship), details of possible effects should be included in the equipment handbook.

### **4 ROLL AND PITCH**

The performance of the equipment should be such that it will meet the requirements of these standards when the ship is rolling up to  $\pm 10^\circ$  and pitching up to  $\pm 5^\circ$ .

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\* Refer to IEC Publication 61162

## **5 CONSTRUCTION AND INSTALLATION**

5.1 The system should be so designed that neither the method of attachment of parts of the equipment to the ship nor damage occurring to any part of the equipment which penetrates the hull could result in the ingress of water to the ship.

5.2 Where any part of the system is designed to extend from and retract into the hull of the ship, the design should ensure that it can be extended, operated normally and retracted at all speeds up to the maximum speed of the ship. Its extended and retracted positions should be clearly indicated at the display position.

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## ANNEX 12

**DRAFT REVISED ANNEX 2 OF RESOLUTION A.485(XII) ON RECOMMENDATION  
ON OPERATIONAL PROCEDURES FOR MARITIME PILOTS OTHER  
THAN DEEP-SEA PILOTS**

1 Efficient pilotage, among other things, depends upon the effectiveness of the communications and information exchanges between the pilot, the master, and the bridge personnel and upon the mutual understanding each has for the functions and duties of the other. Establishment of effective co-ordination between the pilot, the master and the bridge personnel, taking due account of the ship's systems and equipment available to the pilot will aid a safe and expeditious passage.

2 The appropriate Competent Pilotage Authority should establish and promulgate the location of safe pilot embarkation and disembarkation points.

The pilot boarding point should be at a sufficient distance from the commencement of the act of pilotage to allow safe boarding conditions.

The pilot boarding point should also be situated in a place where there is sufficient time to meet the requirements of the master-pilot information exchange. (See paragraph 4 below)

3 The appropriate Competent Pilotage Authority should establish and promulgate procedures for ordering a pilot for an inbound or outbound vessel, or for shifting a vessel.

As human resources and technical means have to be planned well in advance, the operation of an efficient pilotage service requires an accurate Estimated Time of Arrival (ETA) or departure (ETD) to be furnished by the vessel as early as possible.

Communication by VHF or other dedicated means should be established as soon as possible to enable the master to confirm the vessel's ETA and the Pilot Station to furnish relevant information regarding pilot boarding.

The initial ETA message to the Pilot Station should include all the information required by local regulations, including:

- ship's name, call sign, ship's agent;
- ship's characteristics: length, beam, draught, air draught if relevant, speed, thruster(s);
- date and time expected at the pilot boarding point;
- destination, berth (if required, side alongside); and
- other relevant requirements and information.

4 Despite the duties and obligations of a pilot, the pilot's presence on board does not relieve the master or officer in charge of the navigational watch from their duties and obligations for the safety of the ship.

The master and the pilot should exchange information regarding navigational procedures, local conditions and the ship's characteristics. This information exchange should be a continuous process that generally continues for the duration of the pilotage.

Each pilotage assignment should begin with a conference between the pilot and the master. During this initial conference, the amount and subject matter of the information to be exchanged

should be determined by the specific navigation demands of the pilotage operation. Additional information can be exchanged as the operation proceeds.

Each pilot should develop a personal, standard conference practice, taking into account regulatory requirements and best practices in the pilotage area. Pilots should consider using an information card, form, checklist or other memory aid to ensure that essential exchange items are covered. If an information card or standard form is used by pilots locally regarding the anticipated passage, the layout of such a card or form should be easy to understand. The card or form should supplement and assist, not substitute for, the verbal information exchange.

This exchange of information should include at least:

- presentation of a completed standard Pilot Card. In addition and if available, information should be provided on rate of turns at different speeds, turning circles, stopping distances and other appropriate data;
- general agreement on plans and procedures for the anticipated passage;
- discussion of any special conditions such as weather, depth of water, tidal currents and marine traffic which may be expected during the passage;
- discussion of any unusual ship-handling characteristics, machinery difficulties, navigational equipment problems or crew limitations which could affect the operation, handling or safe manoeuvring of the ship;
- information on berthing arrangements; use, characteristics and number of tugs; mooring boats and other external facilities; and
- information on mooring arrangements.

It must be clearly understood that any passage plan is a basic indication of preferred intention and both the pilot and the master should be prepared to depart from it when circumstances dictate.

5 Pilots should be encouraged to understand the IMO Standard Marine Communication Phrases and to use them in appropriate situations during radiocommunications as well as during verbal exchanges on the bridge. This will enable the master and officer in charge of the navigational watch to better understand the communications and their intent.

6 When performing pilotage duties, the pilot should report or cause to be reported to the appropriate authority, anything observed which may affect safety of navigation or pollution prevention. In particular, the pilot should report, as soon as practicable, any accident that may have occurred to the piloted ship and any irregularities with navigational lights and signals.

7 The pilot should have the right to refuse pilotage when the ship to be piloted poses a danger to the safety of navigation or to the environment. Any such refusal, together with the reason, should be immediately reported to the Competent Authority for further action.

8 Pilots should be adequately rested and mentally alert in order to provide undivided attention to pilotage duties for the duration of the passage.

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## ANNEX 13

SECTION 2.4.5 ON NAVIGATION OF THE DRAFT GUIDELINES FOR THE DESIGN,  
CONSTRUCTION AND OPERATION OF PASSENGER SUBMERSIBLE CRAFT**"2.4.5 Navigation**

- .1 Autonomous craft should be provided with such visibility on the surface as will enable the craft to be navigated safely.
- .2 Arrangements should be made for autonomous craft to be clearly informed of the situation in the area in which they intend to surface prior to doing so.
- .3 The passenger submersible craft should be provided with means enabling it to be located under water in case of emergency taking into consideration the maximum operating depth of the craft.
- .4 Where a releasable location system is used the release arrangement may be manual or hand-hydraulic. It should not depend on electrical power for its operation and should be able to operate at all anticipated angles of heel and trim. The size of the float and length of line should be such that expected currents acting on the line do not prevent the float from coming to the surface.
- .5 The emergency signal means should have other than main power source capable of providing its continuous operation during for a period at least equivalent to the emergency life-support requirements.
- .6 Passenger submersible craft should have navigational equipment as given in table 2.4.5.6.

**Table 2.4.5.6**

N	NAVIGATIONAL EQUIPMENT	NON-AUTONOMOUS SUBMERSIBLE	AUTONOMOUS SUBMERSIBLE
1	COURSE INDICATOR	1	1
2	LOG	1	1
3	DEPTH INDICATOR	2	2
4	ECHO SOUNDER	1	1
5	CLOCK	1	1
6	STOPWATCH	-	1
7	INCLINOMETER AND TRIM INDICATOR	1	1
8	CURRENT VELOCITY INDICATOR	1	-
9	SONAR FOR DEPTH AND DISTANCE TAKING	-	1

- .7 Control and indicators of navigational equipment listed in table 2.4.5.6 should be located in the pilot compartment.
- .8 Passenger submersible craft should have two independent instruments for registration of its depth with a depth alarm. At least one of these instruments is to be a pressure gauge capable of functioning also in an emergency situation. If both are pressure gauges, they should not have common inlet."

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## ANNEX 14

## REVISED WORK PROGRAMME OF THE SUB-COMMITTEE

## SUB-COMMITTEE ON SAFETY OF NAVIGATION (NAV)

		Target completion date/number of sessions needed for completion	Reference
1	Routeing of ships, ship reporting and related matters	Continuous	MSC 69/22, paragraphs 5.2 to 5.62 and 20.41 to 20.42; NAV 45/14, section 3
2	ITU matters, including Radiocommunication ITU-R Study Group 8 matters	Continuous	MSC 69/22, paragraphs 5.69 to 5.70; NAV 45/14, paragraphs 8.1 to 8.7
3	Casualty analysis (co-ordinated by FSI)	Continuous	MSC 70/23, paragraphs 9.17 and 20.4
<del>H.1</del>	<del>Revision of SOLAS chapter V</del>	<del>1999</del>	<del>MSC 69/22 paragraphs 5.71 to 5.73; NAV 44/14, paragraphs 5.1 to 5.38</del>
H.21	Guidelines on Ergonomic criteria for bridge Equipment and layout	<del>1999</del> 2000	NAV 45/14, paragraphs 6.1 to 6.6; MSC 69/22, paragraphs 20.48, 21.32 and 21.39
H.32	IMO Standard Marine Communication Phrases (in co-operation with COMSAR and STW)	<del>1 session</del> 2000	MSC 68/23, paragraphs 2.3 to 2.5; MSC 71/23, paragraph 20.33; NAV 45/14, paragraphs 13.20 to 13.24 and 11.9
H.43	World-wide radio navigation system	2001	MSC 69/22, paragraphs 5.65 and 20.43; NAV 45/14, paragraphs 7.1 to 7.13

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Strikeout        =        proposed deletions  
Grey                =        proposed additions/changes

**Sub-Committee on Safety of Navigation (NAV) (continued)**

		<b>Target completion date/number of sessions needed for completion</b>	<b>Reference</b>
<del>H.5</del>	<del>Performance standards for night vision equipment for high speed craft</del>	<del>1999</del>	<del>MSC 68/23, paragraph 20.46; NAV 45/14, paragraphs 7.17 and 7.19</del>
H.64	Amendments to the COLREGs	2000	MSC 69/22, paragraph 20.46; NAV 45/14, paragraphs 4.1 to 4.8;
<del>H.7</del>	<del>Training and certification of maritime pilots and revision of resolution A.485(XII)(co-ordinated by STW)</del>	<del>1999</del>	<del>MSC 69/22, paragraph 20.47; NAV 45/14, paragraphs 9.1 to 9.5</del>
H.85	Review of performance standards for shipborne satellite radionavigational receivers	2000	NAV 45/14, paragraphs 7.14 to 7.16; MSC 70/23, paragraph 20.17.1
H.96	Performance standards for bridge watch alarms	<del>2 sessions</del> 2001	MSC 71/23, paragraph 20.28
[H.7	Guidelines for recording events related to navigation	<del>2 sessions</del> 2001	NAV 45/14, paragraph 5.46]
[H.8	Guidelines on Automatic Identification System (AIS) operational matters	<del>2 sessions</del> 2001	NAV 45/14, paragraphs 5.18 and 11.8]
H.9	Comprehensive review of chapter 13 of the HSC Code	<del>2 sessions</del> 2000	NAV 45/14, paragraphs 13.11 to 13.17; MSC 70/23, paragraph 20.17.4
H.10	<del>Revision of performance standards for devices to indicate speed and distance (resolution A.824(19))</del>	1999	<del>MSC 71/23, paragraph 20.32; NAV 45/14, paragraphs 7.22 to 7.25</del>

**Sub-Committee on Safety of Navigation (NAV) (continued)**

		<b>Target completion date/number of sessions needed for completion</b>	<b>Reference</b>
L.1	Performance standards for navigation systems and equipment		NAV 45/14, paragraphs 7.14 to 7.30
	<del>1</del> performance standards for daylight signalling lamps	<del>1999</del>	<del>MSC 67/22, paragraph 19.25;</del> NAV 45/14, paragraphs 7.20 to 7.21
<del>L.2</del>	<del>Safety of passenger submersible craft (co-ordinated by DE)</del>	<del>1999</del>	<del>NAV 45/14, paragraphs 10.1 to 10.6</del>
L.3	Development of guidelines for ships operating in ice-covered waters (co-ordinated by DE)	2000	MSC 69/22, paragraph 20.51; NAV 45/14, paragraphs 13.6 to 13.9; MSC 71/23, paragraph 20.43
L.4	Integrated bridge systems (IBS) operational aspects	<del>2 sessions</del> 2001	NAV 44/14, paragraph 7.26; MSC 70/23, paragraph 20.17.2
L.5	User requirements for heading systems	<del>1 session</del> 2000	NAV 44/14, paragraph 7.31; MSC 70/23, paragraph 20.17.3

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**ANNEX 15****PROVISIONAL AGENDA FOR THE FORTY-SIXTH SESSION****SUB-COMMITTEE ON SAFETY OF NAVIGATION (NAV) - 46th session**

- Opening of the session
- 1 Adoption of the agenda
  - 2 Decisions of other IMO bodies
  - 3 Routeing of ships, ship reporting and related matters
  - 4 Amendments to the COLREGs
  - 5 Integrated bridge systems (IBS) operational aspects
  - 6 Guidelines on Ergonomic criteria for bridge equipment and layout
  - 7 Navigational aids and related matters
    - .1 world-wide radio navigation system
    - .2 performance standards for bridge watch alarms
    - .3 performance standards for shipborne satellite radionavigational receivers
    - .4 user requirements for heading systems
  - 8 ITU matters, including Radiocommunication ITU-R Study Group 8 matters
  - 9 IMO Standard Marine Communication Phrases
  - 10 Guidelines relating to SOLAS chapter V
    - .1 guidelines for recording events related to navigation
    - .2 guidelines on Automatic Identification System (AIS) operational matters
  - 11 Comprehensive review of chapter 13 of the HSC Code.
  - 12 Development of guidelines for ships operating in ice-covered waters
  - 13 Work programme and agenda for NAV 47
  - 14 Election of Chairman and Vice-Chairman for 2001
  - 15 Any other business
  - 16 Report to the Maritime Safety Committee
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